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GUNSHOT WOUNDS OF THE ABDOMEN.*

THE IMMEDIATE END RESULTS IN 46 CASES.

MARTIN O. MILLER, M. D.,

NEW ORLEANS

The series of cases which I am reporting (46 in number) are cases which have come under my personal observation here in Charity Hospital while on duty every other day as house surgeon, since July 1, 1925, to date.

In reviewing these cases of abdominal perforations which I have had the opportunity to observe, I do not do it with the hope of bringing any new ideas in the treatment or plans of management, but with the desire to review the subject briefly and to bring forward the method which I have employed in Charity Hospital.

To my mind the most important factor in treating gunshot wounds of the abdomen is a too early operative procedure, which is just as dangerous if not more so, than a too late surgical interference. From time to time the question comes up as to when to operate and when not to operate these cases. All cases of active hemorrhage demand immediate surgical interference. It has been a recognized fact that the mortality rate increases rapidly with the increase of time intervening between the time of injury and the time of operation.

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First, how shall we differentiate between shock and hemorrhage? The patient suffering from hemorrhage is usually listless and lifeless, while on the other hand the shock patient is usually restless and has air hunger. If after giving an infusion of glucose or saline before operation the patient rallies for a few minutes only with a rise in blood pressure, and then again the blood pressure falls, it is fairly safe to state that this patient is suffering from hemorrhage. The patient who does not rally after intravenous administration of glucose, or saline, or blood, will not rally from the additional shock of an operation.

The diagnosis is nearly always self evident in gunshot wounds of the abdomen from the point of entrance of the bullet. However, in two of my cases, one received a bullet wound at the junction of the middle third of the right thigh, there was rigidity of the abdomen, no point of exit, fluoroscopic examination revealed the bullet in the right lower quadrant of the abdomen in the region of McBurney's point. At operation three perforations of the cecum were found. In the other case the point of entrance was in the 5th right intercostal space, in the mid-axillary line. There was pain, tenderness and rigidity of the upper abdomen, no nausea or vomiting, and pain throughout the upper abdomen. Fluoroscopic examination revealed the bullet in the upper abdomen in the midline, midway between the ensiform and the umbilicus. At operation two perforations were found in the stomach midway between the greater and lesser curvatures about two-thirds of

the distance from the pylorus. There was a similar perforation on the posterior wall of the stomach. There was no injury to the pancreas or blood vessels. Both of these cases had uneventful recoveries.

To my mind it is of diagnostic value to plot the structures which would be perforated in an imaginary line from the point of entrance and the point of exit, and in the event that there is no exit here is where tht fluoroscope is of benefit in locating the bullet, giving the surgeon an idea where to look for the damage.

Tenderness is nearly always present; vomiting may or may not be present; rigidity may or may not be present. I have seen cases with perforations of the abdomen in which the abdomen was soft and flacid. Pain is present in about 75 per cent of the cases. The facial expression is always one of anxiety.

In quoting Dr. Richard A. Barr of Nashville, who states a bullet can not produce traumatic shock without hemorrhage: "Intra-abdominal hemorrhage demands operation for its control. A general anesthetic is a stimulant in psychic shock. So in a general way I think that one can justify holding the position that shock is not a contra-indication to prompt operation in gunshot wounds of the abdomen." My results in cases which I have operated early did not concur with the statement made by Dr. Barr.

The only positive way to determine whether perforations have occurred is by exploratory laparotomy. It is better to explore a negative abdomen occasionally than to fail to operate on one with perforations.

In practically all the cases it is surprising how small an amount of bowel contents escape from a perforation. This is explained by Nicholas Senn as being due to the contraction of the muscular coat for several inches above and below the point of perforations. Leakage is prevented until the muscles become exhausted and peristalsis forces the intestinal content to the point of perforation. It is always a good idea to give large doses of morphin, say one-half grain, from the time of the injury until the operation in order to paralyze the intestines, thereby inhibiting, or preventing peristalsis.

There was only one case of the abdominothoracic type. Morelli states that it is the oscillation of the mediastium caused by the traumatic pneumothorax that largely contributes to the immediate shock of these patients. It is always best to suture the wound of the diaphragm before giving any time to suturing the intestines; this will invariably give the patient immediate relief.

Stomach perforations when that organ is full are more serious because of the escape of the contents. Anterior perforations are easy to find and to repair. A posterior wound is best reached through an opening made by separating the greater omentum from the transverse colon along the line of the insertion of the omentum to the intestines.

Wounds of the small intestines are as a rule in pairs, but may be single. A few hours after perforation of the small intestines the neighboring peritoneum becomes covered with a plastic exudate.

It is claimed that if we eliminate from consideration associated lesions of other organs, infection from injury with escape of contents of the large intestines is more serious than infection following the injury of the small intestines. The contents of the cecum and ascending colon are rich in bacterial flora of virulent character, so that comparatively few patients with perforation of the colon survive even when promptly operated on.

Wounds of the kidneys are as a rule accompanied with injuries to the small intestines and are best treated conservatively unless there is great danger of extensive hemorrhage. Nephrectomy is required if the renal vessels are divided or great de-

struction of the kidney has occurred. Occasionally gunshot injuries of the kidneys are followed by hydronephrosis subsequently requiring incision and drainage.

Wounds of the bladder are comparatively rare. The bladder contents are normally not infectious but if they enter the peritoneal cavity cause more or less chemical irritation. Cystotomy should be done in bladder wounds with urinary infiltration. Intraperitoneal wounds of the bladder demand abdominal operation if conditions are favorable; if not, a retention catheter should be introduced promptly.

Liver injuries are lacerations as a rule. The wound of entrance is usually small and that of exit large. Hemorrhage is always present and often subsides spontaneously. Fortunately the liver tends to tear and give way between the large vessels. Uncomplicated gunshot wounds of the liver require no surgical treatment, unless there is serious hemorrhage which is best controlled with a pack.

Injuries to the spleen, if there is active hemorrhage from the splenic vessels, are best treated by doing a splenectomy. A simple uncomplicated wound is treated by suturing.

A brief summary of the cases, 46 in number, is as follows:

The largest number of perforations was 23. In 3 cases no perforations of the viscera were found except that only the peritoneum was injured. The average number of perforations for the series was 8. Upper abdominal injury was present in 16 cases. Injury to the colon occurred in 17, to the liver in 7 cases, to the bladder in 2 cases, and to the spleen in 1 case. The rest were injuries to the small intestines associated with other complications.

Spinal analgesia was used in 6 cases, ethylene in 1, local in 1, and the rest received ether. The mortality was not greater with spinal analgesia than with ether. Spinal analgesia is not recommended for gunshot wounds of the abdomen because these cases are in a moderate degree of shock and spinal tends to increase the shock and to lower the blood pressure. For all practical purposes ether, I believe, is the anesthetic of choice.

The average time for each operation was 53 minutes.

Injuries in the upper abdomen are much harder to manage, the mortality is greater than those of the lower abdomen. The mortality is much higher in cases in which there are injuries to both the large and small intestines.

The incision of choice is the median incision, which is made sufficiently long to give a good exposure. If a great deal of hemorrhage is encountered it is best to find the active bleeding point and control it at once. Evisceration is not recommended because it increases shock. All perforations of the intestines are repaired with paraffin silk No. 9 in two layers—the inner including all the coats, and an outer Lembert continuous suture. In the colon, owing to its lax wall, leakage of its contents occurs fairly early, but its relatively fixed position, excluding the transverse colon, favors walling off of infection. In looking for perforations of the intestines always begin at some fixed point and repair each perforation as it is found. Occasionally it is quite evident from the direction of the bullet that the entire inspection of the abdominal viscera is not necessary.

Irrigation of the abdomen was never done. Where there was a great deal of soiling sponges were used to cleanse the soiled areas.

Drainage was done in each case either through stab wounds or at the lower angle of the wound. Every case received tetanus anti-toxin.

In two cases it was necessary to do resections of the small bowel because of the close proximity of the perforations and the extensive injury done to the intestines.

End-to-end anastomosis with the Murphy button was done in both instances.

These cases were brought to the hospital almost immediately following the injury. My recent practice has been to give a half grain of morphin upon admission, take the blood pressure, examine carefully without too much manipulation, fluoroscope (gently handling the patient), and then send to the observation room where each patient receives 2000 c.c. 10 per cent glucose intravenously with ten units of insulin per each 300 c.c. of the glucose; in other words, one unit of insulin per each 3 gm. of glucose; and hypodermoclysis 1000 c.c. normal saline, with external heat and cardiac stimulants if indicated. The patients rallied in every instance but one; when an exploratory laparotomy was done, and an active point of hemorrhage was revealed—the immediate operation was done because the patient was getting progressively worse. In the other cases laparotomy was done from 3 to 6 hours after injury. Up until a recent period we encountered considerable difficulty in obtaining blood for transfusion. Through the co-operation and suggestion of Dr. P. H. Jones and Dr. M. W. Hunter, medical officers at the Charity Hospital, we are now able to get blood for transfusion from the medical wards from patients suffering with hypertension.

Immediately after the patient was operated on and sent to the ward 500 c.c. of citrated blood was given. From then on two infusions daily (from two to six days) were given of 2000 c.c. each of 10 per cent glucose with 10 units of insulin with each 300 c.c. By means of a Wassermann needle it was not necessary to cut into the vein. About 3 hours was required for each infusion. Enough morphin was given to keep the patient absolutely quiet, a Jutte tube through the nose was allowed to remain in the stomach for drainage for a period from 1 to 4 days. Practically no discomfort was experienced with the Jutte tube. Subsequently blood transfusions were given as required. Fluids were administered on the 2nd day by mouth and the Jutte tube clamped for about 30 minutes after the intake of fluids. The wound was dressed daily with gradual removal of the drains, which were completely removed on the 7th day. There was very little distension of the abdomen in those cases which did not die of general peritonitis. After the patient reacted from the anesthetic the head of the bed was elevated 12 inches.

Of the 46 cases operated on there were 26 colored males, 11 died and 15 recovered. 5 cases were colored females, 2 died and 3 recovered. 12 cases were white males, 7 died and 5 recovered. 3 cases were white females, all died. The youngest colored male was 14 years, the oldest 44 years. The average age was 26 years. The youngest colored female was 18 years, the oldest was 43 years. The average age was 27 years. The youngest white male was 16 years, the oldest was 53 years. The average age was 33 years. The youngest white female was 18 years, the oldest was 41 years. The average age was 33 years.

Of the 46 cases, 23 recovered and 23 died, giving a mortality of 50 per cent. The number of patients who died on the first day was 6. 1 died on the operating table. 2 died on the second day. The number of days the longest lived after operation was 19. The average for the series was 5 days. Of those that recovered the longest number of days remaining in the hospital was 59, the shortest 12, and the average stay in the hospital was 18 days.

The combined causes of death were general peritonitis, hemorrhage, shock, septicemia, intestinal obstruction, multiple carbuncles, and bilateral infection of the parotid gland, and bronchopneumonia. Of the last 10 cases operated on 7 recovered and 3 died. The time elapsing from the injury to operation was 4 hours. Each patient received infusion before operation, 2 received transfusion on the table and from 1 to 5 transfusions after going to the ward. Of the 3 patients who died, 1 died on the 12th day after the operation from septicem-

ia following multiple carbuncles; 1 died on the 8th day of acute bilateral parotitis. In neither of these cases was there any evidence of peritonitis. The other case died of lung complications on the 2nd day. This patient in addition to having nine perforations in the small and large bowels received two bullet wounds of the chest, and one of the arm.

Dr. James Monroe Mason of Birmingham in 1923 reported 69 cases, of which 9 were stab wounds and 59 gunshot wounds of the abdomen, 1 crushing injury with a ruptured spleen. In his series there was a mortality of 56.4 per cent. Ordinarily the stab wound is a less serious injury than gunshot wounds. I have personally operated on 8 cases of stab wounds of the abdomen without a single mortality,—these I have not included in my series.

Dr. E. D. Fenner in 1902, Annals of Surgery, reported 152 cases from the Charity Hospital in New Orleans of which 96 were gunshot wounds with visceral injuries, of these 71 died giving a mortality of 74 per cent.

In 1915, Annals of Surgery, Dr. LeGuerry, of Columbus, S. C., reported 27 cases with three deaths,—a mortality of about 10 per cent. Dr. M. B. Davis, of Nashville, November, 1925, reported 20 cases with 13 deaths, a mortality of 65 per cent.

At Touro Infirmary, New Orleans, 4 cases,—4 deaths, a mortality of 100 per cent. At Hotel Dieu, New Orleans, 2 cases, —2 deaths, a mortality of 100 per cent.

SUMMARY AND CONCLUSION.

1. Before operation, treat shock with infusion or transfusion.

2. Give large doses of morphin before operation and after operation, in sufficient amount to keep the patient quiet.

3. Fluoroscopy is an aid in localizing the bullet, giving the operator an idea as to its course.

4. Infusion and transfusion as the condition of the patient demands following the operation.

5. The median incision is the one of choice.

6. Ether anesthetic is recommended.

7. Drainage of the stomach with Jutte tube following operation.

8. Do not operate early. From three to six hours after the injury is the best time. Operation is recommended up to 36 hours after the injury.

9. When in doubt as to intra-abdominal perforation do an exploratory laparotomy.

10. Transfusion should be extensively employed.

11. Auto-reinfusion should be practiced in selected cases.

12. The greatest mortality occurs in cases of profuse hemorrhage.

VISCERAL INJURIES IN GUNSHOT WOUNDS OF THE ABDOMEN.*

FRANK L. LORIA, M. D.,†

NEW ORLEANS.

It is not my intention to present a study of gunshot wounds of the abdomen in general; because through my experience in the study and analysis of these cases I cannot consent to the prevailing opinion that gunshot wounds of the abdomen can be honestly and conscientiously discussed and dismissed through the efforts of one paper alone. The subject is too large for a short paper; except, perhaps, for the presentation of a few interesting cases. In this short discourse I merely wish to put before you one phase of this important subject.

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†From the Department of Surgery of the Tulane University School of Medicine.

Much has been written, both by civilian and military surgeons, on this question; but in each instance the subject appears to be only scantily covered, with the result that the reader is left with the same impression as before reading. For the last twenty years very little progress and only a few new ideas have been evolved. I do not claim that I shall present any new ideas; but I am going to urge the study of these cases in a new way; that is, in a more detailed manner. Each case is an individual problem in itself; but, at least from statistical studies, it must be admitted that a few general principles exist; and it is from these phases that I shall urge the survey of these cases.

Only a small percentage of cases of gunshot wounds of the abdomen escape injury to the viscera and other nearby structures of importance. Condict in a report of 20 cases of gunshot wounds of the abdomen presents 1 case operated without there having been found any injuries, and one in which the omentum alone was injured. In a series of 76 cases operated by the house officers at Charity Hospital during the years 1925 and 1926, twelve cases escaped damage to the structures within the abdomen and pelvis. All recovered except one who died of intestinal obstruction. The relative safety of careful exploration is, from these figures, pretty well demonstrated.

In 1925 Dr. Matas was instrumental in the appointment of a committee on gunshot wounds of the abdomen, of which he was made chairman and the writer secretary. It is the duty of this committee to study and analyze all cases that are admitted to the Charity Hospital for treatment; and to make an annual report to the surgical section of that hospital. The work of gathering the material—that is, watching the cases during their stay in the institution, seeing them, when possible, if they should recover, or witnessing the autopsies when they die—fell to the secretary. It is because of this that I have been afforded an excellent opportunity to study these cases at first hand. Each yearly report to the surgical section has consisted of a study of these cases from about 18 different points of view. The subject of this paper and the material utilized in its construction is gathered from one of these points of view.

CLASSIFICATION OF THESE INJURIES.

Through the study of these cases I have found that the injuries to the various organs and other structures may be classified as follows: (1) Contusions, (2) Abrasions, (3) Penetrations, (4) Perforations, and (5) Lacerations. It will naturally be reasoned that the severity of the injury varies with the type of the injury; and it must also be admitted that of the types named, the first is the least dangerous, while the last will produce the most deleterious results. It is scarcely necessary to repair contusions, somewhat more important to treat abrasions; and doubtlessly essential to repair or in some one manner or other treat the lacerated tissues.

SOURCE OF MATERIAL.

The figures, to be presented herewith, were derived from a study of 112 cases, which is the total number admitted to the Charity Hospital during the years 1925 and 1926. Of these 76 were operated. The study was possible through analysis of the operative records in the cases that were operated and lived; and from the records of the coroner's office in the cases which were not operated but died; as well also—a further study of the operated cases at post-mortem. A study of these figures has given me some idea as to their prognostic significance. However, the author does not mean to convey the impression that these injuries alone constitute the determining prognostic factor. I thoroughly realize that multiple other factors come into play. Among them are the general health condition of the patient at the time of receiving his injury; the extent of shock, if any, whether it be from hemorrhage or otherwise; the provisions made to treat this

shock before operating; the duration of the operation; the structures or viscera injured and their extent of injury; the post-operative treatment; and the ability of the patient to fight infection.

Mason tells us that the hemorrhage factor is of very considerable importance; McGuire says the duration time of the operation is of very great import; whilst Condict appears to give the impression that quick surgical intervention is probably the deciding factor. The writer agrees with the opinions of both Mason and McGuire, but feels that they present only two factors which should be put side by side along with other factors, such as the pre-operative treatment of shock, etc.

I feel that quick intervention in these cases, unless there is practically no shock, should be discouraged. In 150 consecutive operations, McGuire, by carefully treating his patients for shock—pre-operatively, has been able to give us the gratifying figures of 30 per cent mortality. It was also shown in my statistical and analytical report that the greatest number of deaths occurred in those patients operated within the first two hours after injury.

The following table gives the time of operation following the injury and the mortality in each group of cases:

Time of operation	Lived	Died	Mortality
One hour	12	28	70.00%
Two hours	13	12	48.00%
Three hours	2	2	50.00%
Four hours	1	0	00.00%
Five hours	0	1	100.00%
Six hours	0	1	100.00%
Ten hours	0	1	100.00%
Time not given	1	2	66.67%

It will be seen that of the 76 cases operated 65 were laparotomized within the first two hours after being shot. Of this number 40 or 57.5 per cent died of internal hemorrhage and shock. The remaining 17 died of various causes.

ORGANS AND OTHER IMPORTANT STRUCTURES INJURED.

Suspected injury to the viscera and other important structures in the abdomen and pelvis constitutes the chief and only reason for exploration. The course of the bullet often tells us which organs are probably injured. However, this is only approximate and problematic. The course of a bullet is very easily deflected by the various tissues which it strikes; and often when no injury is suspected to the organs in the pelvis perforated ileum and bladder are found. The position of the patient when shot probably determines this more than any other factor. Because of this a general exploration of the abdomen and pelvis is routinely advised in all cases.

Condict, in summing up the Gouverneur Hospital Series found that "the mesentery was perforated four times, the omentum five times and the inferior vena cava once. Omentum was found protruding from the abdomen five times and the intestine three times. Of the wounds of the hollow organs there was one of the gall-bladder, two of the transverse colon and one of the sigmoid, six of the jejunum and six of the ileum.

"Of the solid organs there was one perforation of the pancreas, only two perforations of the spleen, three of the kidney and 12 of the liver. In no case in this series, were the pelvic organs or the bladder involved."

These statistics were gathered from a study of 52 cases of gunshot and stab wounds of the abdomen treated at the Gouverneur Hospital from March 11, 1911, to August 31, 1922.

Of the 112 cases treated at Charity Hospital—as above mentioned—the organs and other structures found injured at operation or at necropsy may be tabulated as follows:

Organs, Etc.	No. of times Injured	Lived	Died	No. showing complicating Injuries
Stomach	26	7	19	20
Duodenum	5	1	4	5
Small intestine	51	11	40	44
Large intestine	44	6	38	40
Rectum	1	1	0	1
Liver	26	2	24	17
Biliary Ducts and Vessels	3	0	3	3
Gall bladder	3	0	3	3
Pancreas	8	0	8	8
Spleen	3	1	2	2
Right Kidney	5	0	5	5
Left Kidney	5	0	5	5
Urinary Bladder	3	2	1	2
Right Ureter	1	1	0	1
Renal Vessels	2	0	2	2
Vena Cava	4	0	4	3
Iliac Vessels	5	0	5	5
Mesentery and Omentum	24	8	16	23

The aorta, left ureter, female pelvic organs, and portal system were uninjured in this series.

It is readily seen, from these figures, that almost all cases showed complicating injuries of one kind or another. Whenever any of the important blood vessels—such as the iliacs—or pancreas and kidneys were struck the termination was invariably fatal. However, this does not necessarily always apply.

In this series injury to the important blood vessels gave uniformly fatal results. The probable reason for this appears to be lack of transfusions and an oversight in the repair of the injury. Transfusion by all means in cases presenting these injuries may tend to save more of them. Autotransfusion, as recommended by Davis, is splendid where the hollow viscera are uninjured; but as we are never sure of this the practice would appear to be too risky for routine use. Should it be impossible to obtain a donor infusions would be of great help; and even if a donor is found an added infusion reinforces that patient's capacity to fight off death.

Injuries to the solid viscera are somewhat less fatal than injury to the important blood vessels. Liver injuries, unless of the lacerated type with profuse bleeding, or injury to important portal radicles, as a rule are favorable. This statement tends to contradict the figures; but it is reasonable to believe this way; and furthermore, more recent cases appear to bear this out. In addition most of the liver cases presented also had other severe injuries. Damage to the spleen must almost always be corrected because open wounds of this organ, as a rule, bleed profusely. Splenectomy is very often necessary; but even so more cases recover. Beltram says that injuries to the pancreas always call for drainage, otherwise the escape of pancreatic juice into the abdominal cavity may cause necrosis and loss of life. The case he reported recovered following this precaution. Injuries to the kidneys are quite serious; perhaps more so than damage to the gastro-intestinal tract. Extensive injury to one of a healthy pair of kidneys will add to the seriousness of the case through the acute retention of nitrogenous by-products, with a tendency to uremia. The good kidney as a rule cannot compensate rapidly enough to avoid this. I am of the opinion that for this reason nephrectomies in these cases should be very few. Even though the injured kidney causes the onset of this trouble removal will only aggravate it; because, as a general rule, there is always enough functioning tissue present to help out to some, even though a small, extent. Hemorrhage is probably best fought by packing the retroperitoneal space in the region of the injury. Ureteral injuries are best left alone. Fistulae brought on by injury to the ureters, as a rule, close spontaneously.

Injuries to the hollow viscera are usually more easily dealt with. In cases of damage to the gall-bladder, drainage with removal at a later date—if necessary—is probably the best procedure. Openings in the urinary bladder are best repaired as usual.

The gastro-intestinal tract often attracts the surgeon's attention to such a degree that it makes him less mindful of possible, and perhaps, even more serious injuries to other structures. I have seen a number of cases in which all injuries appeared to be

repaired. The gastro-intestinal tract, liver, and spleen appeared in good condition; but on further examination there was found a ruptured iliac or renal vessel, or injury to the pancreas which had not been drained.

I do not mean to detract from the importance of scrutinizing, inch by inch, the entire gastro-intestinal tract; but very often the surgeon feels content just as soon as he has finished repair of the stomach and intestines. However, even with this great care in the repair of the gastro-intestinal tract, oftentimes an abraded wound is left unrepaired and rupture takes place, producing fatal results. Contusions are, as a rule, best left unmolested and abrasions should be treated with care. A great number of perforations within a small area calls for resection. This also applies to extensive lacerations. Large lacerations of the duodenum, in any of its portions, necessitate a gastro-enterostomy and careful repair of the lacerated area to avoid a flow of duodenal contents into the peritoneal cavity. In order to save time the end to end anastomosis with use of the Murphy button is almost indispensable.

CONCLUSIONS.

1. Statistics analyzing injuries to the various organs and structures in the abdomen and pelvis were derived from a study of 112 cases and are herewith presented.

2. The subject of gunshot wounds of the abdomen is too large for general discussion. It is my opinion that a separate study of the various phases of this subject will later lead us to a better understanding and better results.

3. Only a small percentage of these cases escape injury to the various structures and viscera. As careful exploration carries only a slight risk, operative intervention is routinely recommended; but only after the proper pre-operative treatment.

4. Injuries to the various structures in the abdomen and pelvis may be classified as (a) contusions, (b) abrasions, (c) penetrations, (d) perforations, and (e) lacerations.

5. The prognosis in these cases is governed by many factors.

6. Injuries to important blood vessels were uniformly fatal.

7. The solid organs, also, show a very high mortality.

8. Injuries to the hollow viscera are least fatal. The surgeon as a rule uses most of his time for the repair of these injuries; often to the neglect of other structures which may need more attention.

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DISCUSSION.

Dr. Jerome E. Landry (New Orleans): Drs. Loria and Miller are to be congratulated on the very orderly and interesting preparation and presentation of their papers. Gunshot wounds of the abdomen are particularly interesting to me and should prove so to those of us who have had the opportunity of serving as house surgeons at Charity Hospital. Unfortunately, gunshot wounds of the abdomen are strictly police emergencies. By that, I mean they are invariably associated with criminal acts and are controlled by the police, who rush them to Charity Hospital in an ambulance or police patrol and the house surgeon operates, whereas, in the ordinary surgical emergencies, such as strangulated hernia, intestinal obstruction and other acute conditions, the surgeon of choice is consulted, sends the patient to a private institution and operates. I dare say there are not more than six surgeons in the City of New Orleans (outside of the house surgeons) who have had an opportunity to operate on gunshot wounds of the abdomen.

I will now briefly touch upon a few of the interesting and important facts brought out by Drs. Loria and Miller:

1. Dr. Loria shows, by statistics, that the greatest mortality is about two hours after injury, death due to shock caused principally by hemorrhage. My views coincide with those of Dr. Miller, who stresses the value of stimulation before operation. I know that by the judicious use of glucose intravenously, and blood transfusion, in other words, by preparing our cases a bit before operation, we should and could reduce our mortality, if we can get our patient out of a state of shock. I think the ideal anesthesia is spinal analgesia. Before using spinal, however, be sure that the patient is not shocked. As a rule, gunshot wounds of the abdomen are associated with shock and the spinal tends to further lower the blood pressure. Wells, in a recent article, tells us how to keep up blood pressure by the intramuscular injection of adrenalin chlorid, ¼ cc. every 20 minutes or so.

2. I believe that late deaths from gunshot wounds of the abdomen involving the liver, caused by septic conditions, are due to hepatic abscesses. I have had two cases of spleen injuries in which a splenectomy was done each time—both died.

3. All cases should be operated on before the expiration of eight hours, or during the period of contamination; one might get by with later operation, but it is dangerous. I cannot agree with Dr. Miller when he says he has operated on cases where thirty-six hours elapsed before surgical intervention and that this period is not too late. Too early is bad and too late is bad. Six or eight hours is about the correct interval; shock is usually counteracted by this time, but if we go beyond that we may get to the point of infection and then we are going to have trouble.

4. Dr. Loria brings out the fact that hemorrhage is often overlooked by over anxiousness on the part of the operator to close perforations in the gut; hence, we should pay closer attention to a more complete exploration. Great stress should be laid on this point, as perhaps many of these cases of delayed shock are due to continuous bleeding of some obscure vessel.

5. He spoke of liver injury being fatal; I have operated on cases with rather extensive tears, simply packing this organ with gauze sponges and they have recovered.

6. Another important point brought out is that in perforations of the intestines, if the perforations are in too close proximity, or the perforation is very extensive, do not try to close them up; it is better to do a resection and an end-to-end anastomosis with a Murphy button, or lateral anastomosis.

I doubt whether any hospital in the world treats as many gunshot wounds of the abdomen as Charity Hospital. Its records certainly afford a wealth of material for study to anyone interested in the subject. To give you an illustration of the enormous amount of cases of this nature treated in this institution, on New Year's night, 1920, between midnight and morning, I operated on four cases of gunshot wounds of the abdomen; one of these cases, a negress, who was shot in the lower abdomen, proved to be exceedingly interesting. Exploratory laparotomy revealed a perforation of the ileum; she had multiple fibroids of the uterus in one of which (a pedunculated fibroid undergoing calcareous degeneration) the bullet embedded itself. I repaired the perforation in the ileum, removed the calcareous mass, and the patient recovered.

Dr. M. O. Miller (closing): In regard to contusions of the intestines, I believe that these injuries should not be left alone, but given attention, otherwise gangrene might set in, a possibility which can easily be guarded against by plication.

In cases of gunshot wounds of the abdomen associated with shock, my observation is that the white patients usually experience shock in a greater degree than the negro patients.

In conclusion, I wish to express my appreciation and thanks to the following:

To the Visiting Staff of the Charity Hospital for the invaluable information which was brought out at the monthly surgical meetings. I feel particularly grateful to Drs. Matas and Loria for their help and co-operation from time to time in studying these cases.

To Drs. P. H. Jones and M. W. Hunter, Medical Officers of Charity Hospital, for their inauguration of a system of obtaining blood from hypertension patients, and to the Visiting Men who have medical wards at the Hospital for their willingness and co-operation in permitting this to be carried out in their respective wards.

To my predecessors, Drs. E. L. Irwin and S. F. Elder, and to Drs. W. H. Cook and J. G. Snelling, present House Surgeon.

To the Interns, who deserve a great deal of credit for their unfailing co-operation and assistance and without whose help I would have been unable to carry out this work.

To Dr. Jerome E. Landry for his discussion and the valuable points which he brought out.

Dr. Frank L. Loria (closing): I wish to thank Dr. Jerome Landry for his liberal discussion. I want to also congratulate Dr. Miller on his splendid paper. His work has been very gratifying, and his figures show a big improvement over the figures of several other house surgeons that I have studied. Dr. Miller must also be complimented for the institution of a method of getting blood for transfusion in these cases; a method which is probably in use in no other hospital in this country—that is utilizing the blood of patients with hypertension. I do not know that this had not been thought of before, but Dr. Miller is the only one who has put it into routine use.

As pointed out by Dr. Matas some short time ago, our Charity Hospital is certainly a laboratory of gunshot wounds of the abdomen. No institution in the world, outside of an actual seat of war, can claim to treat as many cases as are treated in this hospital. It is because of this that we are able to gather so much valuable material and thereby given a splendid opportunity to study these cases.

THE RELATIVE UNIMPORTANCE OF GLASSES.*

W. A. STEVENS, M. D.,

GULFPORT, MISS.

Years ago many people suffered discomfort, pain or poor vision, for months and years, when glasses would have prevented it all. That time has passed. It is well to advocate the wearing of correct glasses, but it is usually unnecessary to urge people to wear glasses. They nearly all seem willing to wear them if necessary, and some insist on wearing them whether necessary or not. I do not wish to censure the wearing of glasses, but to call attention to their unimportance in many cases.

I believe that the eye, by irritation or inflammation, by disturbances of vision or by symptoms of muscular weakness is often the earliest and most delicate indicator of physical abnormality.

The patients coming to be fitted with glasses may be put into the following classes:

1. Those who have an error of refraction.

2. Those with muscle imbalance or muscle weakness, with or without refractive error.

3. Those in whom the eye examination reveals signs of disease.

4. Those in whom the eye examination is negative.

1. Perhaps the first class is the largest. The patient complains of poor sight or of headache or of pain, burning, tiring or blurring of the eyes. An error of refraction is found. The probability is that the cause of the symptoms has been found and that proper glasses will give relief. But there are some questions to be considered.

Some patients complain of eye-strain who have very small refractive errors, while others with large errors have slight symptoms or none at all. Does not the reaction of these respective persons to their refractive errors give information regarding their nerve and muscle tone?

In many cases of asthenopia the symptoms date back only a few weeks or months. Why did the symptoms appear, when the refractive error was there before?

Some years ago a school boy came to me complaining of headache and tiring of eyes of several weeks standing. I found a com-

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pound hyperopic astigmatism. He asked if I were sure that this error caused his headaches. I told him that I knew it *could* cause his headaches. A day or two later he became sick with an attack of malarial fever. After recovering he returned to school, complained no more of headache and never returned for his glasses. There was no question about the error of refraction, yet it caused no symptoms when he was free of malaria.

Often glasses are worn with satisfaction for a time and then discarded. This may be due to relief of the eye-strain. But I believe it is frequently because the asthenopia was caused by some systemic infirmity, which having passed off, the need of glasses is no longer felt.

I am coming to believe that if the history of asthenopia is of short duration, the patient should be examined further, even if refractive error is found, remembering that there may be more than one cause for the symptoms.

A lady consulted me in March, 1926, complaining of frequent headaches. I found the refraction O. D. + 1.50 D. S., O. S. + 1.50 D. S. = + .75 C. ax. 90°. There was a deviation of the nasal septum to the left, causing contact with the middle turbinate. The tonsils were submerged, red and spongy. I suggested fitting with glasses and if this failed to give relief, tonsillectomy and submucous resection of the septum. She preferred to try the operative work first. Tonsillectomy was done and she complained of no more headaches. I believe that there were two or three factors in the cause of her symptoms, and that the refractive error was relatively less important than the tonsils.

Presbyopia is generally considered inevitable at about 45 or 46, but it is much influenced by the health. It appears earlier in individuals in poor health. Sometimes it is precipitated by a severe illness. It is delayed by vigorous health and outdoor life. Some years ago I examined a man, aged 55, who had never used glasses. He had a slight hyperopia and 1 D. of presbyopia. He had returned a few months before from Mexico, where he said he had lived in the open for several years, usually sleeping on the ground.

2. Glasses are of great value in many cases of heterotropia. They are ineffective, however, if there is much amblyopia or if there is no fusion sense.

In heterophoria glasses are a help in certain cases; e. g., in anisometropia, in hyperopia with esophoria, in myopia with exophoria. But in many cases they do not help. Muscle exercises often give good results, but sometimes do no good until the underlying cause is found and removed.

In one case I found an exophoria of 12°, converging power 10°, emmetropia. This patient had been given prism exercises by an oculist for six weeks without benefit. There was a deviation of the nasal septum to the left, completely obstructing the left nostril. I did a submucous resection. A month later the converging power was found to be 18°. Convergence exercises were given and a short time later convergence was 35°.

The cause of the exophoria here was probably pressure in the middle turbinate region. Sometimes it is due to infected sinuses, teeth or tonsils. sometimes to systemic disease or weakness.

3. Many patients that come for glasses have something much more serious than refractive error. I have had such cases in whom I found cataract, glaucoma, paralysis of ocular muscles, keratitis, choroiditis, retinitis, retinal arteriosclerosis, optic nerve lesions, etc.

Paralysis of ocular muscles is most usually due to focal infection or syphilis. Last year, however, I had an unusual case in a little boy at Greenville. The parents said that they thought his sight had been defective for the past week or two and that he had complained of double vision. Examin-

ation showed nothing but the diplopia. Further questioning brought out the information that he had fallen out of a running automobile on the concrete road two weeks before. He cried a little at the time, was not unconscious and had complained of no pain since. A roentgenogram showed a linear vertical fracture in the parietal region of the skull, extending to the base. Dr. Archer examined him and found nothing else abnormal. He was put to bed and the diplopia passed off in about two weeks.

When a patient whom I have previously refracted returns in a year or two with a very marked change in the refraction of an eye, especially an increase in refracting power, I am on the lookout for either cataract or glaucoma. If nothing pathological is found, such a patient should return at intervals for observation.

The presbyope who has been wearing reading glasses and who returns because of headache should have the fundi examined and should be examined for focal infection, nephritis and high blood pressure.

There are cases with easily diagnosed cataract, glaucoma or fundus disease who ask to be fitted with glasses. Let me say that in a case of progressive loss of vision, if you find that a change of glasses will give a little improvement in vision, say a line or two on the test card, resist the temptation to change them. If you do prescribe glasses, the patient will soon decide that he sees no better with these giasses than with his old ones, that they are no good and that he was robbed when he paid $10.00 or $12.00 for them. On the other hand, if you impress on him that glasses are unimportant and that the trouble is in his eyes, he will probably pay the same fee without complaint. Such is the peculiar psychological effect of prescribing glasses.

The busy oculist is too much inclined to fall into a routine. Sometimes he doesn't take time to let the patient talk and tell all his troubles. It is true that it is often a waste of time, as the patient will insist that his iritis or keratitis was caused by a cinder, but sometimes his description of symptoms will direct the investigation and actually save time.

Several years ago a man was sent to me by Dr. Payne of Greenville. He impressed on me that he did not come voluntarily, that he had resolved never to consult another eye specialist. He had consulted two, he said, and they would not listen to his troubles, but simply examined his eyes and changed his glassses, and the new glasses were no better than the old. His main symptom was constant severe headache. He also complained that when working at his desk he could not see objects to the right. Vision was 20/20. Hyperopia 1.25 D. S. Presbyopia 1 D. S. The fields were taken and showed a right homonymous hemianopia. Pupils responded to light on either half of the retina. The fundus was normal. Diagnosis was probably a tumor in or near the left occipital lobe of the brain. A decompression operation was performed soon after and the surgeon's diagnosis was glioma of the parietal lobe. I deserve no credit in this case except for listening to the man's account of his symptoms.

Sometimes in examining a fundus, I am uncertain whether it shows abnormality or not. I usually have this patient return in a few days or a week. In one instance I examined a man who dropped in to have his glasses changed because he had been having headaches for three weeks. I found his glasses correct. The fundus appeared normal except that the disc, instead of being concave, seemed to be flat or perhaps slightly convex. I asked him to come back in three or four days. Two days later, to my chagrin, he had a stroke of apoplexy. I am uncertain about the explanation of the papilledema. Perhaps there was an intra-cranial aneurysm. Since then I have seen another case with the same appearance of the disc, accompanied by diplopia and a little weakness of the arm and leg, fatal apoplexy occurring about a week later.

4. There are many refraction cases in whom the examination is negative. I include in this class those with orthophoria and with emmetropia or with iso-hyperopia up to .75 D. S. I can see no need for any one with normal vision and good health to wear a clear glass of .25 D. S. or .50 D. S. in each eye. I believe that a larger amount of hyperopia will not cause symptoms in such persons if the eyes are not abused.

A simple calculation will show that if a person reading at 13 inches with a +.50 D. S. or +.75 D. S. will take off the glasses and move the print to 15 or 17 inches he will read with the same accommodation. He will require less convergence and if the vision is normal, he will see practically as well.

In these negative cases, the headache and other asthenopic symptoms may be caused by focal infection. Children brought to be fitted with glasses are often relieved by removing the tonsils. I had one case in which a spasm of the accommodation passed off after a tonsillectomy.

If no trouble is found with the nose, sinuses, teeth or throat, a general physical examination may reveal some pathology. Sometimes the outbreak of an acute disease explains the symptoms. In other cases the symptoms may cease after a time, no cause having been found. In others the cause is not found until weeks later. One patient complained that her glasses had become unsatisfactory. I found her refraction exactly the same that I had found a year before. Having examined the eyes, nose and throat I advised her to see her physician. Six months later she had a major operation performed, the nature of which I did not learn. A few months later she told me that her same glasses were perfectly satisfactory.

In some cases the symptoms are due to poor light. I have examined children said by the teacher to have defective sight, in whom I found normal eyes with normal vision. Evidently something was wrong in the school room.

In many instances, the cause of asthenopic symptoms is a bad habit. Children are said to be near-sighted because they hold the print six or eight inches from the eyes, who are found to have 20/20 vision and hyperopia. Others who complain of tiring of the eyes are found to hold the print too close. In these cases it seems to me that training them to hold the print farther away is better treatment than putting on convex lenses.

Bad habits are found in adults too. The most usual ones are doing an unreasonable amount of eye work and taking insufficient exercise. A young man who had been living an outdoor life began book-keeping. He came to me a few months later complaining of headaches and tiring of the eyes. He had emmetropia and orthophoria and was taking no outdoor exercise at all.

A young lady with symptoms of eyestrain was working in an office about a mile from her home and taking no outdoor exercise. She had only a slight hyperopia, I advised her to quit using the street cars. Two weeks later she reported that her symptoms were gone.

In conclusion: American oculists are probably the most accurate refractionists and prescribe the smallest corrections in glasses. Accuracy and precision are to be commended. But we should not sacrifice breadth of view for magnification of detail.

In asthenopia, the eye muscles are too weak for the work required of them. Refractive error may be the cause, may be one cause or may have nothing to do with it. One cause or the entire cause may be a pathological condition or a bad habit, the correction of which may prolong life and is therefore more important than the correction of the refractive error.

DISCUSSION.

Dr. B. S. Guyton (Oxford): I enjoyed this paper. It bears out the things I have always heard about Dr. Stevens—that he is very conser-

vative and does not do things that he thinks are not really essential in caring for a case. He spoke of the fact that patients who need glasses usually do not need any urging to wear them. I question that to this extent, that you take strong hyperopes and you nearly always have trouble making them wear suitable glasses. You examine their eyes and prescribe strong glasses for them, and you have a great deal of trouble in getting them worn. I was taught to compromise on total strength when I first studied this and I think the man I first studied under was one of the best on refraction I have known, and he advised compromising on the total strength of glasses in hyperopes when examined with a mydriatic. I have noticed Dr. Jackson at Denver prescribe the full strength and insist that the patient wear the glasses whether he likes them or not. It may take three or four weeks until he gets accustomed to them.

I have found a great many very intelligent people, strong hyperopes, who would not wear the glasses, even when needed ever so badly. A great deal of my practice is with university students, and I find that those who work hardest (take for instance the medical students, and you know a man in the first two years has something like from thirty to thirty-six hours a week, and there is a great deal of microscopic work) are those who get most good out of the glasses for the small errors of refraction. You take those who do not work so hard, and the glasses of weak strength don't do so much good. But the medical students who are laboring all the time, get a great deal of good out of glasses when there isn't much error of refraction.

I have had some experience with operating on the nose to relieve certain errors. I had one case who had considerable exophoria, I never could correct his trouble with glasses. I used prisms on him to some extent; I could never get him entirely corrected until I did a septum operation, and after that he had no trouble.

I believe the doctor mentioned one case of a tumor with which he had trouble. It so happens that I have run on three cases of pituitary tumor in my limited experience, and two of these cases had a most beautiful demonstration of bi-temporal hemianopsia. One case came in asking for glasses. His brother came with him, and before I had time to examine his eyes, his brother got to laughing at him about "My big, fat little brother." I found he had gained fifty pounds in three months; in other words, he had gained half a pound a day for three months. He was a lineman for a bridge gang on a railroad, and he was still working at his trade. On thorough examination I found he had bi-temporal hemianopsia; typical of tumor of pituitary gland. I sent him to Mayo brothers and they verified the diagnosis, but did not operate—advised waiting a while. I never got the boy back to them—he died.

The next case I had came in also looking for glasses. It so happened that I was spending the summer in Denver. I did a little locum tenens work while Dr. Jackson was out of his office at the American Medical Assosciation—he had me to look after cases that would come in without engagements, and this man dropped in wanting glasses for poor vision. I found that this case was another pituitary tumor in which he had gotten fat rather fast and had bi-temporal hemianopsia.

It is often a question with me as to how the men who are limiting themselves absolutely to eye-work will get along without making a nose and throat examination. I am sure that a lot of our troubles with the eyes are due to infections about the nose and throat, and with these men who limit themselves to the eyes, it seems to me that perhaps one-fourth of their patients would have to be sent to a nose and throat specialist. I think it is a great help to examine the nose and throat. I certainly enjoyed the doctor's paper, and I am sure he is right in the fact that a great many of us do prescribe glasses when they are not needed.

Dr. L. S. Gaudet (Natchez): They say that the eyes are the mirrors of the soul. The eyes are also the mirrors of the body. Dr. Stevens has given us a very valuable paper, because it brings out a great problem in the fact that the oculist must be a physician, and also brings out the problem of the physician being somewhat of an oculist. In the case of all eye troubles, regardless of whether they are the fitting of glasses, or for pathological conditions it is an unwise problem when an oculist narrows himself down to the point that he forgets the rest of the body, and that is one of the valuable points that Dr. Stevens brings out in his paper.

In cases of any kind of eye trouble, regardless of what it may, it is wise always to take into consideration the functions of the other portions of the body and the bearing of those functions upon the eye condition. I believe that we eye men too frequently get ourselves into a little, narrow routine method of doing things and overlooking so many other vital problems that come up in our work. I think the doctor mentioned a case of malaria causing headache and getting relieved without the fitting of glasses. Well, if we stop to think and talk about headaches, we will only be going over old problems and we won't do that. The first thing on the list, we must remember is our focal infection, and probably 99 per cent of all people have some focal infection of some kind or other. It may be tonsils, it may be sinus, it

may be teeth, but if this paper does nothing else but broaden our minds in our eye work, it has accomplished some very valuable things.

Dr. W. A. Stevens (closing): I thank the gentlemen for their discussion. The point that Dr. Guyton mentioned, the difficulty in some cases in getting people to wear glasses properly. That is true but those are rather exceptions than the rule, I think, at this time. I do not want to leave the impression that I am not in favor of prescribing glasses when they are needed. I think astigmatism should always be corrected and corrected fully and I have seen the correction of only 25 D. of astigmatism give complete relief from the symptoms. The main point is that we should not drop into the habit of just correcting a refractive error and stopping there. If the patient comes for glasses he may need something else much worse. I am sure that my friend Dr. McWilliams finds a great many more cases of sinus trouble now than he did five or six years ago, because he is looking for it. I am sure in the last few years I have seen a great many more cases of glaucoma than before I had a tonometer. Having a tonometer has not caused me to find them, but the fact that I have it rather indicates that I am looking for glaucoma. I find most of them before I ever use the tonometer and employ it more for precision than anything else—to see how much tension I have found. But, as the Bible says, "Seek and ye shall find"—that is the main point. We ought to be looking for something, and not stop with the first thing we find, which may be a little refractive error.

OTITIS MEDIA.*

E. LEROY WILKINS, M. D.,

CLARKSDALE, MISS.

This is a very common condition and because we see so much of it, is considered too simple. When we consider that about 80 per cent of all the partial and progressive types of deafness are due to, or are the result of, an earlier otitis, and certainly a large part of these were otitis media, we must revise our idea of its simplicity and consider these conditions as potentially dangerous. Nearly 10 per cent of them result in mastoiditis.

The development of otitis media is dependent upon the entrance into the middle ear of micro-organisms. This entrance may be effected through the eustachian tubes, the most common route, through the blood stream or the lymphatics, and of course if there be a perforation of the drum membrane, through that route. The type of bacteria may, and does, vary with the individual case and the stage of the disease. Almost always there is a mixed infection after the "M. T.", membrana tympanum, is opened. There seems to be some divergence of opinion and findings of the types present before the external avenue is opened. Hays says, "First of all comes the various types of streptococci, mucosus, capsulatus, communis, viridans and hemolyticus; the staphylococcus; the pneumococcus and then the various organisms which are not so commonly found, such as the bacillus of influenza; the Friedlander bacillus, the bacillus proteus and the colon bacillus. Any type of organism may be found but these are the most common and they have been given in the order of their importance and in the order of their frequency."

Other factors which contribute to the cause are also many and varied, possibly the most common being the so-called "common cold," with its attendant irritation of the nose and naso-pharynx. These membranes become swollen and cause blocking of the ventilation and retention of the infected mucus forming an excellent culture medium for the growth of additional bacteria; the hard blowing of the nose so blocked, and the forcing of the air through the path of least resistance, which is often the eustachian tubes; abnormal development of the intra-nasal structures; the presence of diseased or hypertrophied tonsils and adenoids or excess of lymphoid tissue in the vault of the pharynx. Certainly the "diseases of childhood," particularly the exanthemata, are contributory factors and with these may be mentioned pneumonia, diabetes, influenza and typhoid fever. Swimming with the resultant entrance of bacteria-laden water into the nose

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and throat is another factor. Particularly is this true in the natatoria.

Because of the prevalence of many of the contributory factors in the cool damp months, late fall, winter and early spring, otitis media is also more prevalent in these months. The incidence of the disease is greater in children than in adults and may be explained by citing again these contributory or predisposing causes and their relative incidence in children, also by the fact that in children the eustachian tubes are straighter and their pharyngeal orifices are larger, affording easier access to bacteria. Deficiencies in diet may also play a part in childhood, even in adults.

It is a well known fact that children can stand more tension on the ear drums than adults, the tissue being more elastic. This, with other factors, creates a difference in the symptoms in the two classes of patients. In fact the symptomatology varies greatly in individuals in each class. Usually the chief symptom is pain. Yet all of you have had cases when the discovery of a discharge from the ear was the first indication of trouble. The history of these cases will in most instances reveal a recent cold or rhinitis possibly so slight as to have shown only a little nasal discharge and practically no discomfort. Another case may complain of tinnitus or impairing of the hearing only. Still another may be referred for examination with only a baffling temperature as a symptom. In children under two years a careful examination of the ears should always be included regardless of what other condition may be suspected. It would be a "safety first" measure to say the least. The body temperature may be raised from one to four degrees, even more, or may be entirely normal. In babies the only symptom may be fretfulnesss at night, with or without rubbing or pulling at the ears. The pain is almost always more severe at night. When the pain is severe and of long duration there may be marked exhaustion.

The blood picture varies so much as to be of little help except by repetition and comparison or in eliminating the possibility of some complication.

Objectively the symptoms are again more or less varied, from a slight to a marked engorgement of the vessels of the membrane, to a distortion of the membrane, or bulging. The distortion may extend over only part of the drum or may even extend well out into the canal wall. The obliteration of the margin of the drum with the canal wall in the postero-superior region is not at all uncommon. In a thin clear drum with a minimum of inflammation, and before the tympanic cavity is filled, one may sometimes be able to make out the outline of the level of the fluid in the cavity.

As the product of the inflammation, usually serous at first, increases the drum is pushed before it and when of sufficient quantity at some point where the pressure is· greater or the membrane is thinner marked bulging or pointing occurs causing necrosis, sloughing and perforation which with its resultant drainage usually affords some measure of relief, especially if the perforation be large enough and favorably placed. These spontaneous openings vary much in size, shape and location. The smaller ones afford some temporary relief but tend to close too early and reopen when pressure becomes sufficient. The larger ones tend to remain open after the discharge and inflammation have completely subsided. The openings of medium size often give relief drainage and recovery.

One symptom that often worries us a bit is tenderness on pressure over the mastoid antrum. This may be due to the proximity of the antrum to the tympanic cavity, especially in children, or the inflammation may spread into the antrum by either contiguity or continuity. Indeed one author whom I have read (Kerrison, Diseases of the Ear) states that the antrum rarely escapes becoming inflamed when the middle ear is involved. This symptom has, no doubt, before the days of the roentgen-ray and with those most surgically inclined,

caused the opening, unnecessarily, of many mastoids. No one claims more than 10 per cent mastoids and certainly this percentage must be much lower where treatment has been given.

Usually the diagnosis of otitis media presents but little difficulty. The history, some one or more of the several usually present symptoms and signs; "cold," "sore throat", recent affliction by some of the exanthemata or "mumps" will lead one to an examination of the ear and the diagnosis. There are some conditions, however, that are worthy of mention in differential diagnosis. In beginning parotitis the pain is usually not so severe, is in front of and below the ear, is increased, usually, by eating any food that increases the flow of saliva, and the absence of findings in the ear itself. Certain conditions in the pharnyx and larynx may cause pain referred to the ear, laryngeal tuberculosis fairly advanced being one condition. The examination of the ear shows little or nothing while examination of the larynx shows the pathology. The catarrhal or non-suppurative type of otitis media simulates very much the suppurative, and very often becomes suppurative, but there would be no bulging of the drum. Acute myringitis is one of the hardest conditions to differentiate. The picture is of a reddened drum with pain, though less severe, and the pain does not persist or grow in severity. Blebs or blisters may be confused with bulging, in fact it may present many of the signs and symptoms of otitis media. The absence of the pharyngeal symptoms, the presence of the light reflex and type of redness will be of help in making a diagnosis. Many of these cases will not clear up without myringotomy and then sometimes become infected ending in an otitis media. The tympanic cavity is often the site of an inflammatory process in acute myringitis of very long standing.

Pain referred to the ear from dental conditions, *i. e.*, apical abscesses, exposed nerves and more particularly an impaction or unerupted third molar, sometimes presents difficulties. The almost, if not total, absence of findings in the ear after a careful examination should lead us to seek consultation with a dentist or radiologist if we do not locate the trouble on the inspection of the mouth. I have found it difficult to convince patients that the pain was not in the ear until I had proved it to be elsewhere. The pain is sometimes quite acute and is so definitely in the region of the ear that one must needs be positive before saying there is no trouble in the ear. Trifacial and facial neuralgias must also be reckoned with at times. Again, the absence of ear symptoms is our main stay, and the exact location and distribution of the pain.

The course of otitis media may run from a few days to several weeks in the so-called uncomplicated cases. Quite a few are inclined to call a case that has discharged for three weeks or more a complicated case, and the complicated cases may run on indefinitely according to the severity and the measures employed and may terminate in mastoiditis, labyrinthitis and even death. I shall not go into a discussion of the complications at all.

In the uncomplicated cases the end results should leave but little evidence of the disease. There may be some thickening of the drums with scars and possibly some paleness. All too often there is a varying degree of deafness. In those that do not heal, there may be anything from a small perforation remaining to an almost complete destruction of the drums and part of all of the ossicles. Early and proper attention should in most cases prevent complications and leave little after effects.

Far be it from me to attempt to lay down hard and fast rules to follow in the treatment of otitis media. I shall mention only some of the things and measures that I have found helpful.

Prophylaxis, I think, should be the first consideration. Of course this is not always possible for the case is often already far advanced when it presents itself. The edu-

cation of the laity is of the utmost importance in prophylaxis. Let us try to train them that an ear-ache may end in a lifelong affliction, deafness, if not something more tragic. Next is to train them that "colds" may bring dire complications, especially where the baby is taught to blow its nose with too much force, and that colds should receive proper treatment if they can not be prevented. Again they must be taught that before a child "outgrows" his diseased tonsils and adenoids he may suffer many other maladies therefrom, among them being deafness.

When the case presents itself before there are the classic indications for myringotomy one might temporize with various measures. I believe that I have aborted not a few cases by early and persistent treatment. Phenol-glycerine, 5 to 10 per cent may be instilled into the ears, repeating every hour or so, then the naso-pharnyx and nose should be treated to relieve the congestion there. I use adrenalin in its various dilutions and follow with argyrol or neo-silvol 5 to 10 per cent and apply heat over the ear and wait a while. This is only in the early stages of course. Another method is irrigating the ear with intensely cold water for a period of several minutes, a short wait and repeat. If these measures do not cause a subsidence of the symptoms in a short time one might as well prepare to make an outlet for drainage which will likely follow the instrument used.

When it is necessary to incise the drum membrane it should certainly be done in a workmanlike manner. A well-pointed and very sharp knife should be used, to make a long curved or angular incision, the type and method well known to all of us. As for anesthesia, there is again a difference of opinion. All the "genetral" anesthetics have been employed. In my own work I use the local almost exclusively. There are not a few preparations that have been used for this purpose. I use equal parts by weight of crystals of cocain, menthol and phenol and find that I get almost if not perfect desensitization and certainly this amount of phenol renders some asepsis to the field. I use this on a small softly wound pledget of cotton placed against the drum where it is allowed to remain for about ten minutes. Strum, in the British Medical Journal, adds to this one part each of rectified spirits and oil of cloves, saying that he does not get anesthesia without them but that he does get an otitis externa when it is allowed to touch the canal walls. I do not find this true with the "C.M.P." solution for I have gone so far as to instill it in the canal.

After drainage is established it is necessary to keep the canal clean and prevent a damming back of the pus. In my office I use cotton swabs but prescribe irrigations with either weak bichlorid or boric acid solution for home use. Have this irrigation done with a douche-bag which has the regular tip replaced by the glass part of a medicine dropper and the bottom of the bag is held about twelve inches above the level of the ear. I realize there are many critics of the irrigation method but many of them are deciding that in private practice a layman can not "dry clean" an ear without causing more damage than with the douche, when the pressure is properly regulated. After irrigation and drying I have dropped into the ear either phenol-glycerin or boric acid and alcohol. The ether treatment I have not tried sufficiently to pass upon it. Mercurochrome and acriflavin mask too many symptoms.

After the discharge has subsided it is necessary to ascertain if the opening has closed, and the state of the hearing. Politzerization and massage may be of some help in clearing up a slight deafness. The unhealed wound if of much size can be helped but little. If small, one by treatment may assist in the closing. In one case of my own with a fairly large opening, about one and one-half by three m.m. oval in shape and fairly regular in outline, I got a closure by freshening the edges of the wound with

a curette and applying over the opening a small piece of sized paper saturated in tincture of benzoin compound. I cite this because the opening had persisted after three or four months. I have tried the method in many other cases with little result except in the fairly new and smaller ones. These while they were slow, might possibly have healed without my efforts. The larger and older ones showed a little or no benefit.

Realizing there is much left that might be said I am reminded that it was hard to find even this stopping place without going much further.

I wish to give credit to references found in articles by Beridon in the March issue of our own Journal; Lewis in Journal Ear, Nose and Throat and Hays textbook on the Ear, Nose and Throat.

DISCUSSION.

Dr. E. H. Jones (Vicksburg): I believe that I am down to open the discussion of Dr. Wilkins' paper. He has covered the subject so thoroughly that I do not find much to add, but there are a few points I would like to discuss. For one thing, last year I personally found, and in talking to other doctors have found, more than 10 per cent of mastoid involved. I remember that Dr. LeJeune and Dr. Lynch had been doing nearly four times as many mastoids as they had in other years; this was probably due to the prevalence of influenza. In discussing the etiological factors, I note that he mentions streptococcus mucosus capsulatus. Dr. Buckley is my authority for the statement that the mastoid infected with that type of organism is an operative case, because there is such an enormous destruction of bone, with such apparently slight symptoms. This is borne out by the way that type of infection progressed in the only case I have ever seen. It was shown by roentgen-ray that there was marked destruction of the bony cells.

He also mentions diet. I may be a little bit "hipped" on the subject of diet. I had the pleasure of hearing Dr. Stuckey discuss diet last February, and I remember his stating that he had a little grand-daughter that was two years old, whose ear drum had been opened eleven times; that that child could be getting along well, and just allow her to eat all the nice sweet, sticky candy she wanted to, and in two days she would have an ear abscess. He was mentioning that in discussion of the use of vitamines and cereals, and at that time he recommended Wryco. I do not know that I have any marked results with it but it has not done any harm.

Another thing is the vagueness of symptoms sometimes. Dr. Alden was to have been here yesterday, and he would have discussed the etiology of mastoiditis as causing some of the summer diarrheas. Dr. Adkins was loaded on this, but you remember in the discussion that Marriott gave, he said they would take ear drums that would have no symptoms whatever and lance them and find very little pus, but if the child died they would find pus in the mastoid.

Another symptom that I have met several times—he mentions here that the margin of the drum or the canal wall may be entirely obliterated; not only have I seen it obliterated, but it goes up sometimes to form a periosteal abscess just above the ear. I have had two cases where I had to open the ear drum and had to incise above and posteriorly to the ear to drain that pus.

I had a peculiar case just two days ago. A very excited mother called me out in the early afternoon to see her little son who had a bad earache. He was cutting his first molar and I found that that was the cause of his ear trouble. Dr. Wilkins mentions teeth as being one of the causes.

He mentions blowing the nose. I think that should be considered. I think Hippocrates started the maxim "Never put anything in your ear smaller than your elbow," and that you should "Never blow your nose hard enough to feel it in the ear."

In mentioning solutions used, I notice he is not wedded to any, and I have had the same experience. I use magnesium sulphate saturated in glycerin. I had found that metaphen, 1-5000, is preferable to neo-silvol or argyrol, but has to be used in copious quantities. I usually have the patient use it five or six times a day, and I get better results.

I want to compliment Dr. Wilkins on getting anesthesia with this solution he uses. I have used it a great many times but I have never gotten complete anesthesia with it. I went so far as to get some ethyl chlorid, and I tried it two or three times and it worked well, but I find so many cases in the literature about the trouble following the use of ethyl chlorid, sometimes sudden death, that I got rather scared of it and quit.

In these cases I find it preferable to use a little curved knife—I cannot think of the name of it, but it was described in the Archives as a little knife that has a stop on it. It has a long cylindrical shank and it has a stop so you can reach in, and unless you use an enormous amount

of force, you can not hit the promontory or stapes at all, and it is very useful with children.

In cases of otitis media where there are apparently some mastoid symptoms developing, I have used suction at times—very gentle sunction with very good results. I think I have avoided some cases of mastoiditis by using suction.

The doctor mentions one process that I think is unsafe. That is, politerization afterwards. I think the method of inflating the eustachian tube by an eustachian catheter is much to be preferred.

There is another method of treatment he did not mention—zinc ionization. I do not know that I have used it enough to know much about it either, but I can report a series of ten selected cases with 100 per cent results. Friel says that post nasal sepsis contra-indicates zinc ionization in otitis media. I have tried experimenting on some cases that had otitis media and also sinus trouble with post nasal dripping, and in using it I did not get any results. If we do not count these little experiments but confine ourselves to the actual cases, we get 100 per cent. I wish to cite one particular case: a young girl eight years old came in from the country; this was at the Charity Hospital; the folks lived over in Louisiana. The child had a right otitis media for six years, and a left for two years, with bad tonsils. I used zinc ionization on the bad ear first. I tried it on the right ear, and in one week that ear was entirely dry. That has been a year and a half ago and it is still dry. Then I decided to take out the tonsils; that was our old remedy, and I did it as thoroughly as possible, and waited two weeks for the other ear to show any symptoms of clearing up, but it did not, so I used zinc ionization and it cleared up right away. I think this is an excellent form of treatment.

Dr. E. F. Howard (Vicksburg): Just two points I will mention. The first is the prophylaxis by early drainage. I can recall one series where we cut some four hundred and twenty-five drums during that epidemic of influenza and had no operative mastoids. If we are figuring on a 10 per cent basis, and I have never seen such a high percentage as that, I do not see how we got away from it, except that we cut everything that we could possibly consider serious. If you cut a drum, and are clean about it, you will not hurt it, nothing is at stake, you have not done any great amount of harm, and ever since that series of cases, I have been profoundly convinced that I had better let the innocent suffer with the guilty and cut the drum, irrespective of whether indications were very suspicious or not, especially where we are working in the presence of some epidemic of that sort.

The other point is on irrigation. I have absolutely abandoned the question of irrigation in otitis media, and I abandoned it about a year ago. I had been extremely suspicious that they never washed any pus out of the ear. I had been long convinced that you just irrigated the outer part of that ear canal. I want to tell you of one case I had. It is all in the family so I can tell this little story. This was the case of the son of Dr. S. W. Johnston, a boy of some twenty or twenty-two years of age. I went out to see him one morning and found him with a beautiful bilateral otitis media, one ear draining and the other with the drum bulging. By afternoon he had beautful drainage on both sides. The boy was very ill. Dr. Johnston brought on immediately his other son from college, he is now in his third year at Vanderbilt, to help nurse the boy. He had a couple of trained nurses, and two or three days afterwards when I called they had a two-quart fountain syringe and were washing out his ears. I waited until they got through and looked in his ears, and there was just as much pus in there as before, because there could not have been any more; you just moved the ear and it dripped out. Now, if a graduate of thirty years experience, plus a third-course medical student, plus an anxious mother, plus two trained nurses, can't wash pus out of the ear, I don't believe it can be done by an ordinary family, so I have limited myself to dry cleaning. I instruct the family of the patient to do wiping with swabs and confine myself to that, and have cut out the irrigation.

Dr. George E. Adkins (Jackson): I want to rise to the condemnation of irrigation myself. They do not irrigate the canal, they irrigate the ear. Then, again, the doctors make a point that if they treat their patients in the homes they can not wipe them out. That is all right, but the thing is if they can't treat them in the homes, why direct them to do it? They can not open the ear drums in the home, and I think it is better to do your own follow-up treatment than it is to give it to the family who can not do it, because you are not as well off after you irrigate as before. Here is what happens. A few years ago bulgarian bacillus solution was recommended to be put in the ear, and we got some results, and we got it because it destroyed the yeast fungi that spring up in the ear. It is a rational proposition now, because we know how it acts. The ear canal is lined with skin. That same skin reflects over the drum. It isn't a mucous membrane as the laity think it is, and when we put water in the ear it stays in—some of it stays in. Now, put on a rubber glove after you have scrubbed for an operation, and then let it stay on for an hour or so, and pull it off and see the condition of your skin. Immerse your hand in water and then take it out and see the condition of your skin. It has

got to peel off, but when it peels off in your ear canal, it has to drop down and fills right up again, and I think it will fill up a good deal quicker after you irrigate than it will if you don't.

Dr. Charles A. McWilliams (Gulfport): I have a little method that I use in irrigating the ear with an alcohol solution. I have the same opinion about irrigation with a large amount of solution that Dr. Adkins and Dr. Howard have, but my idea about irrigation is that we really do more harm, especially if we do not caution the patient not to put anything in the ear until the discharge begins. We all know that when we do a paracentesis, there may be no discharge for two or three days, sometimes it is even longer than that. I make it a rule to tell the patient not to put anything in the ear until the discharge begins, because I think we set up an otitis media very often when we open the ear and get a dry hole. I had a case where the ear drum was bulging and it looked as if it were full of pus, and when I opened it, it was full of gas, and there was a hole in the ear drum and absolutely no discharge. The discharge started in a couple of days. If I had put any kind of solution in it—mercurochrome or anything else—and some germs were in the canal of the ear, it would set up a secondary infection which is worse than a primary infection in the ear. I think the main thing is not to use anything in the ear until the discharge begins, and then when it begins the only thing you can accomplish by irrigating the ear is to keep it from causing a secondary infection in the canal. You do not get any of that solution inside your drum. I make it a rule to give them boric acid and alcohol, and put twenty drops in a medicine dropper and irrigate the exterior canal, pump it up and down. I do this for two reasons: one is you have to give them something to use—if you don't they will think you are neglecting the ear, and will probably put somebody else to irrigate it, and the alcohol solution does keep an external otitis from forming, especially when the pus gets behind the ear.

Another thing about this cocain, menthol and carbolic acid—I think if you will leave it in at least twenty minutes you will get a satisfactory anesthesia. I do not think you will get it under ten minutes, but I would not advise leaving it longer than twenty minutes. I had one case where I put the solution in about 2 o'clock in the afternoon. I had the ear filled up, and after I put the solution in the parents asked for a general anesthetic and wanted a certain doctor to give it. I told them to find him and let me know when he came. I went on to treat some other patients and left the solution in the ear for about four hours. When they came back everything was perfectly white. It really didn't do any damage—there was no sloughing of the drum, but I thought sure we would get a sloughing of all tissues. The child had both a general and a local anesthetic.

Another little stunt I tell the patients to use. I read it somewhere. Instead of using politerization, I have them to hold the nose and swallow. There is an opening of the eustachian tube in the normal ear; if it is all swollen you can't feel it—if it's normal you can hear the ear drums click, opening and closing. I think that little stunt really helps in all otitis media cases.

Another observation I have made is that the most persistent discharge from children, that gives me more trouble than any other type. is that associated with sinus infection. Most of these sinus infections are unilateral. The ear that runs the longest is always on the side where the sinus infection is worst, and in such cases it is mighty hard to clear them up until you clear up the sinus infection, so I always pay attention to the treatment of the sinus and post nasal spaces rather than to the discharge. I give them a little alcohol solution to keep them busy with the ears, but I know the cause of it and once the sinus trouble is eradicated and the adenoids removed, you can get that discharge stopped in children.

Dr. H. R. Fairfax (Brookhaven): I think Dr. Wilkins is to be congratulated on his excellent paper, and I want to emphasize one point. In a case I had recently there was absolutely no pathology that I could see in the ear. The child had been complaining a day or two with her throat. I said, "Let me see your throat." The tonsils were just full of pus. As to irrigation treatment I have to disagree with him there. I am much more in favor of the old fashioned alcohol and boric acid swab treatment. It has been very satisfactory.

Dr. B. S. Guyton (Oxford): I would like to mention one thing here. Two or three years ago I heard Dr. Harold Hayes in the Colorado Congress in a series of lectures, and he mentioned the use of adrenalin and cocain when you first see a bad ear, or the patient first begins to complain of earaches. He stated that in most of these cases unless the drum looked extremely violent that he would use a prescription something like this: cocain and menthol each 5 grains, adrenalin a dram to an ounce of water, and have the patient to heat it and use 5 drops in the ear every half hour for five times, and then wait about twelve hours and use it again—the same series five times every half hour—about five drops. I use it in infants this way, any age child. I have used this since that time, and I am sure it has helped me in numbers of cases to save having to open ear drums.

To illustrate it, I have a little boy whose ears fired up. I opened the drums immediately; a few months later one fired up again. I opened it immediately. I could see from the scar tissue in his ear drums, however (they healed each time), he had a little deafness. His ear drums fired up again in spite of the fact that his tonsils and adenoids were out, and I did not want to keep on opening his ear drums, so I used this medicine and I have used it every time since then that his ears have fired up and every time it has cleared them up. I never wait over twelve to fifteen hours from the time they begin to have earache; if the second series of treatment does not clear it up, I then go ahead and open the ear drums.

Two or three years ago at our meeting in Biloxi, Dr. Blackshear was there and he discussed some papers on otitis media and he showed us this little knife he was using with great success, and I have used it a great deal since then. With very little children I do not use any anesthetic, I just punch the ear drum and it is all over in a second, and very few of them will cry more than a few minutes. This is the knife (exhibiting it). It cuts a "V" shaped opening. If you make a curved incision in the ear drum you will notice in a few hours it has healed up all but one tiny little point. This will make just as good opening as you would get from anything else. If you care to see this knife, here it is. I carry it in my pocket all the time. With just a little alcohol sterilization you can punch an ear at any time.

I notice you mention wiping the ears out. I rarely ever use cotton swabs to wipe an ear out. I use suction. I have a Brawley suction outfit right by my cabinet. On the end of a rubber tube I put the glass part of a medicine dropper, and on the small end of that the tiniest little piece of rubber catheter, and I suck out the pus by sticking the little rubber catheter in the canal. You can get it out much better and with far less pain to the patient.

As for local anesthetic I have been using the same thing that Dr. Wilkins mentioned. I had Dr. McWilliams' experience once. I left it in too long and I got a burn, and it gave me trouble for two weeks. I put it in the ear just exactly as Dr. Wilkins does and asked the patient to stay out in the other room for a few minutes. I forgot the patient for a whole hour and when I did get him back in the office I saw I had a burn, and it took me two weeks to get it cleared up and it caused no end of trouble. You can look in that ear right now and see the patient has some scar tissue all through that drum that I do not believe would have been there if we had not allowed that anesthetic to stay in so long.

Dr. W. A. Stevens (Gulfport): Regarding the prophylaxis, I have never had much confidence in drops instilled in the ear, but in earache from an ordinary cold I frequently find that mopping out the naso-pharynx will relieve it. The instillation of argyrol and liquid albolene through the nose will frequently relieve a child that is having earache. If these measures fail, the ear drum should be opened. In the exanthematous diseases we should take no chances at all. If there is sufficient inflammation to cause pain and fever, I believe in lancing the drum. I have used the same anesthetic mixture and by leaving it in fifteen or twenty minutes have found it satisfactory. After you have an opening in the drum, I certainly think you never want to drop any solution of any kind in the ear, and I instruct my patients to do nothing whatever to the ear until they see yellow pus coming from it. I then tell them to irrigate it, with the idea that it will prevent irritation of the external ear. If it has not stopped discharging in a week I use the suction or dry treatment. The majority of them will not run pus at all—simply have a little serum running two or three days, and then it is all over. If you use drops in the ear you may induce infection. Even those that do show up pus after three or four days will usually within a week's time be healed. You do not need any after treatment at all, but I always tell my patients that if it runs as much as a week, that is long enough and we had better get busy with dry treatment then, but my treatment is entirely taking out and never putting anything in.

Dr. H. L. Arnold (Meridian): I am glad Dr. Guyton mentions suction. I think it is one of the most valuable aids in the treatment of a discharging ear, and frequently when the patient is old enough I use it by an apparatus that is not original with me, of putting a tube to the ear and having a glass bulb and a rubber tube in the mouth and let the patient suck it out. I find it a very valuable aid in the treatment of these ears. I am sure if you will use this mixture Dr. Wilkins mentions—the local anesthetic—and get it on the drum, leave it about 15 or 20 minutes, you will never have any trouble in opening an ear.

Dr. E. L. Posey (Jackson): I use somnoform in treating these drums. I find it very satisfactory. If you gentlemen never have used it, try it sometimes. I never use glycerin and carbolic acid after the drum is opened. I find that sometimes this will stop up the opening made by the incision and you have to reopen the drum. I never use irrigation. I have never found where it could do any good. I can see where great harm can be derived from its use.

Dr. H. D. Anthony (Memphis): I certainly appreciate listening to this paper. I would like to mention one thing—a little more about something the doctor brought out. He mentioned the case of the infection of different germs, and he

mentioned the hemolyticus streptococcus. I think this acute infection of the middle ear has been neglected and I think we are going to hear more about it all along now, and right soon. The hemolyticus streptococcus I think is the most violent infection that we can have in the middle ear. It is so violent that cases have been reported, and I have had a few, where it caused mastoid infection within twenty-four hours after the infection started in the middle ear. This type of mastoiditis is always caused by the hemolyticus streptococcus, and you get a thrombotic condition in the small vessels in the mastoid cells. I have a case right now to demonstrate this, I think, in the hospital—that has been there eight weeks, and as you well know a case usually leaves the hospital within two weeks, sometimes within a week after operation. This child was taken suddenly ill with acute, violent earache at school, came home, her mother took her temperature, and as she was accustomed to using a thermometer she really took the temperature by rectum, which is the only correct way to take it. This child's temperature was so high that you could not depend upon it being taken by mouth; the temperature the first day was 102, that was in the afternoon; that night it was 103; next day it was 104; on the third day I was called to see the patient and the temperature was still 104. I examined the child and saw the drum was red, with some bulging, mastoid very tender, stiffness in the sternomastoid muscle and very tender on that side of the neck. With these symptoms I immediately transferred the child to the hospital for a myringotomy. I wanted to get a large incision and the child had a small drum and a small canal. In those cases, I think a general anesthetic is better than when you have a large canal. Of course you can do better local work in a large canal. This child went on forty-eight hours following this—the temperature stayed up. I had a blood culture taken and had a positive culture for a hemolytic streptococcus in twenty-four hours had eight colonies, and I think eight colonies was a marked infection for a twenty-four hours growth—in fact, it was less than twenty-four hours. I imagine it was about eighteen hours.

Well, the ear started on Monday, the myringotomy was done on Thursday, blood culture was taken on Saturday, and Sunday the roentgen-ray picture was taken of the mastoid and reported negative. There was no breaking down; in fact, the affected ear looked as well as the good ear. I did the mastoid after that finding and found there was not a normal cell in the mastoid; there was practically no pus in the antrum and there was not breaking down of any cell—the whole thing was acute hemolytic streptococcus infection in the mastoid. For four days after that the temperature stayed so high and she had so many chills that it looked like a typical picture of jugular thrombosis. A culture was taken every day and it was positive every day, so I attempted and did do a jugular resection, took out a section of the jugular. It was a child nine years old, and you could not take a long section out of a child that size. I did a simple mastoidectomy, the sinus wall looked normal, but I did the jugular to cut off a general infection from that area that was infected with the hemolytic streptococcus—the culture from the ear showed pure hemolytic streptococcus and the culture from the blood showed the same. I believe this case of acute otitis media following immediately with a high continued septic temperature was due to a general septicemia.

There seems to be a good deal of discussion on dry and wet treatment, which always comes up, and I am interested and always find out some new way to clean an ear that I had not thought of. I have found out several today. In one patient you can clean an ear better with one method than you can with another. The cases I have tried the dry treatment on, the canal gets stopped up with the secretion and I did not get the drainage that I wished for, and for the last few years I have been letting the mother irrigate with a medicine dropper. I furnish them with a medicine dropper and have them to sterilize the solution every time they use it—plain boric acid solution; have them turn the child's head over on the bed without any pillow, and suck it up and down, and when you suck it up you can see just how much pus you are getting and keep on until you get a clear solution returned. I have repeatedly had the mothers do that, and then looked in the ear and there was a drop or two of clear fluid in the ear and most of the time you will have a clean drum and a clean canal, but the solution soon comes with the pus out of the middle ear, and it just sweeps the water out in a way that does not cause any damage.

I am so glad to have had an opportunity to hear the discussion of local anesthesia. I never have before heard anybody mention that it has caused trouble by burning and sloughing in the drum. I have always believed that it did, and I have never used it but a few times, because I can not see why carbolic acid is not a cautery and gets under to the sub-cutaneous tissues and will give you an anesthesia, and what few cases I have used it on, I think it caused a swelling of the drum, and the incision seemed to be closer together after using it than if I had not used it.

Dr. E. Leroy Wilkins (closing). I expected to get romped on even more than I have about this irrigation proposition. In my reading in the last two or three years I have found a large increase in the number of men who have stated they are

being converted to the irrigation method when properly administered, for the cleaning of the ear by the laity. Not all of our people can have such assistance as Dr. Johnston's boy did; therefore we may get better results.

Dr. Jones mentioned more than 10 per cent of mastoids last year. I had quite a lot of cases of otitis media, but did not have as much as 10 per cent of mastoids.

The proposition about the different types of bacteria and when to operate because of the streptococcus hemolyticus has always been my bugaboo, and I always hated it more than anything else.

The proposition of diarrhea due to middle ear disease was so new to me and I knew so little of it that I did not mention it.

In the different methods of treatment and the suction, etc., in cleaning the ears, I mentioned here three years ago, in discussing a paper on this same subject, the use of dry cleaning. When I was at Camp Dix, N. J., with Dr. Wells P. Eagleton of Newark, N. J., we ran a series of about one hundred and eighty or ninety cases. He wanted to put in a line of treatment with dry cleaning. It was quite popular at that time, so he had us to treat every case by dry cleaning, and the use of dichloramin T; he had us clean the ear, fill it with dichloramin T, and then with some slight pressure with Seigel's otoscope press some of it into the middle ear. We ran along and some of those cases showed pretty good results, so without his knowledge we ran a series of control cases, using boric acid and alcohol. We had a report on those dichloramin T cases twice a week at the officers' meeting, and he just thought we were getting wonderful results from them, but as the cases grew more numerous we showed him we were getting just as good results by dry cleaning and suction, and the instillation into the ear canal of 70 per cent alcohol saturated with boric acid. He had this published in the Army and Navy Journal, a series of about one hundred cases we had run and the marvelous results we had accomplished; this was in 1918.

As far as the anesthetic is concerned, I do not like a general anesthetic in any place at all where I can use a local. Certainly with ether or most any other gas anesthetic, there would be a possibility of lighting up some trouble there. If you use anything of that kind to relieve otitis media you have certainly created an irrigation in the lungs, and a child going out in two hours afterwards, will stand a chance of getting some infection in the lung. I seldom let one go more than fifteen minutes with the local anesthetic in the ear. Taking up from one to fifteen minutes, I have not seen any bad results, but by the long continued application of this to the ear canal and the drum it may perhaps cause sloughing. I have been afraid of it for that reason.

As to the knife mentioned by Dr. Jones and the punch by Dr. Guyton. The knife with the shoulder and the hooked bill point serves me excellently. I also have a long, curved rapier knife, and with little children where they are going to fuss a good bit, certainly under your local anesthetic, I would rather take that much trouble than to take a chance of giving them a general anesthetic when their lungs and their nasal mucous membrane are already infected and involved, but that knife serves a very excellent purpose, I think. The punch I have never used. I have one. About nine or ten years ago Dr. Lewis Levy of Memphis read a paper before the Tri-State Medical Association on otitis media and demonstrated that knife. Some of those doctors criticised him about "gouging" the ear. I had gotten one of the knives, but I put it away after this.

Some one mentioned the politzerization method, and not using it. I have not been able but a few times in my life to use an eustachian catheter on a child. I like it in adults; there is less chance of infection, but I do not do much with it in children under five years. You have to put them to sleep to do it.

Dr. Howard mentioned the early opening of all ears. That idea is quite prevalent with ear, nose and throat men everywhere. A great number of them go on the proposition when in doubt do a myringotomy. Certainly it is better to let the innocent suffer with the guilty than to wait too long, but I hate to open an ear drum unless I am sure, because I feel that in the hands of the laity, and most of the patients are getting that sort of care, you certainly have a chance to get an entrance infection from the outside.

May I again speak of irrigating? I have an ordinary douche bag, tips removed. I make them take an ordinary medicine dropper. I show them how to pull the ear to straighten the canal and put this so that this point will throw a small stream of water in there. I have had very little trouble. All of them do not get the ears clean, but with the medicine dropper and the small tube and small stream of water, most of them can. Then, at the office I have an old tubing from a fountain syringe with a medicine dropper fixed in it, and I have shown it to every patient I have had for six or seven years. I show them how to fix it and I have them tie it so that this medicine dropper, with a short piece of tubing extending, is about one foot below where the tubing attaches to the bag. You do not get an excess pressure, and I have been able to get them to clean the ears much better than I could with the other method. The moisture remaining from this treat-

ment, glycerin and phenol, helps to overcome that to some extent and the boric acid and alcohol to a greater extent.

Dr. Adkins said that if they were not going to do it right to let you do it. I try to have my patients come back one time anyway within the first two or three days and if they discharge more than a week. Dr. McWilliams mentions three or four days—I am afraid some of his cases maybe got an infection from the outside when they wait that long. If I do not get a discharge within the first thirty-six hours, I probably am getting a secondary external infection.

Dr. Anthony or Dr. McWilliams mentioned holding the nose and swallowing. This is excellent. The chewing of gum is being recommended for the relief of soreness of muscles in post-tonsillectomy cases, and I find that it milks down the secretion to some extent. I have not used it to know whether this is so or not.

I have had quite a few cases with unerupted or impacted third molars who have given me quite a good deal of trouble. In one case, a lady made me incise an ear drum against my will, when I had tried to get her to have a tooth extracted, and against my will but with the young lady and her physician both insisting that her ear was the trouble, I did a paracentesis—got no drainage, no pressure of air. I kept it as clean as I could, and in three days she told me she was going to get better, that her ear was running. I figured I had not kept it clean and had infection from external route. Finally she had to go to the dentist—she had an unerupted third molar on both sides—both of them were removed at the same time and in thirty-six hours her pain absolutely left her. Her ear discharged for about ten days and we relieved that with the other methods. I try to see every case on whom I do a paracentesis at least once afterwards. I insist on their coming back, and I look at the ear and see what is going on. I thank you, gentlemen.

403 WcWilliams Bldg.

SYPHILIS OF THE LUNGS.*

R. G. DOUGLAS, M. D.,

SHREVEPORT, LA.

I am presenting this subject because, so far as I know, no series of cases of pulmonary syphilis has previously been reported before this body, and in order that I might save you the glaring errors I have made in the diagnosis of the condition, and put in words these experiences along the pathway of medicine which might be of some benefit to you. I do not intend to lead you into the mazes of medical history, or recommend to you in detail the fairly voluminous literature of this subject, nor induct you into a confusing bibliography; there will be no presentation of text book data, no tedious discourse on micro- and macro-pathology, on fine differential points in auscultation, percussion and phonics, and great quotations from authors I have read; but I will rather let you infer that I have spent many sleepless nights poring over tomes concerning this subject. In these days when the quest of the obscure and the terror of the obvious has become a cult I hesitate to make such a simple presentation of a common subject, but I feel that the general practitioners, those who represent the frontier of medicine, are overlooking a rather common condition that has always been considered a rarity. I feel that the presentation of a few personally studied cases will be of more value than the statistical report of many hundreds. More than twenty cases have come under our observation in the past six years, but I will only present four as characteristic ones.

Contrary to the usual rule I am going to present my conclusions first:

1. Pulmonary syphilis offers no definite criterion for diagnosis from the standpoint of the roentgenologist as it offers no characteristic picture nor can it absolutely be distinguished from other lesions. However, there are certain shadows particularly in the bases, which will lead one to suspect syphilis.

2. The course of the disease, due to the mild inflammatory reaction of the spirochetal agent, may be either acute or chronic, but chronicity is the rule.

3. Clinically the picture of pulmonary syphilis is not characteristic and simulates

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chronic bronchitis, bronchial pneumonia, neoplasm and tuberculosis.

4. The blood Wassermann is only fifty per cent positive and if it is positive it may but mean other visceral lesions and is but another link in the corroborative chain.

5. The therapeutic test is the one which generally gives most consistent proof, as all of these pulmonary syphilitics have their condition cured or arrested at once on beginning specific treatment.

6. In a case of supposed tuberculosis with repeated negative bacteriologic findings, or of a primary new growth of the lung, it should be first put on anti-syphilitic treatment and thoroughly tested with the same before being condemned to prolonged anti-tubercular treatment or neoplastic death.

I do not intend to insult your intelligence or reach your threshold of receptivity and powers of assimilation by showing you a long series of pictures to show that I have really amassed a great lot of data, but I am showing you radiographs on four cases to demonstrate a variety of therapeutically proven syphilitic lesions of the lungs in their various manifestations.

Case No. 1. The first case for your consideration is Mrs. A. A., forty-three years old, who is a fair example of pulmonary sclerosis or fibroid induration, which shows as broad indurated bands growing through the parenchyma of the lung, enclosing it in a network of fingers reaching quite to the periphery and extending uniformly into the bases. You will note the presence of calcified glands which are usually not found in a purely luetic chest. In the lower right lobe you will see an area of circumscribed fibrosis which is probably a healed gumma, while in the left side is a much more diffuse fibrosis. This case is being quoted first as it was the only one in which the diagnosis was guessed correctly.

She had three children with no miscarriages, her family and husband are in good health. She was somewhat neurotic, ignorant, introspective, an indefatigable talker and had poor insight into her own condition. She came complaining of a cough which had been recurrent in type for five years. She had no hematemesis but some dyspnea and her pain was merely muscular from paroxysmal unproductive coughing. She was slowly losing weight and has had intermittent rises in temperature. She would have low grade fever for several weeks at a time and did not feel badly enough to go to bed. She had taken a barrel of cough medicine. The attacks seemed to be self-limited and she apparently recovered without treatment. She had lost but little weight and she thought that her loss of strength was due to lack of sleep and overwork. She had been variously treated for capillary bronchitis, asthma and tuberculosis. She was too poor to go to Colorado but was now desperate enough to sell her home, quit her husband and move. Physical examination showed her pupils to be Argyle-Robinson. Her patella reflexes were absent and she had a positive and unmistakable Rhomberg. It was these findings that made me suspect pulmonary syphilis. Examination of her chest revealed nothing of importance except fine sibilant rales universally distributed. No moist or crepitant rales were brought out on expiratory cough. There were no changes in the transmitted voice or percussion note. Sputum was repeatedly negative but so also was the Wassermann. In view of the fact that her symptoms were out of proportion to her physical findings, no bacillus of Koch, no night sweats, little loss of weight, intermittent fevers subsiding without treatment, a suggestive roentgen ray and positive signs of cerebral spinal syphilis she was diagnosed pulmonary lues and put on specific treatment. This was in September, 1926, and now she is well from her point of view. The nocturnal and morning cough has stopped. She is attending to her work unhindered and she does not feel sick.

I believe the only reason the above diagnosis was made correctly was because in the three years previously we had been mistaken so many times, as the next three cases will show.

Case No. 2. W. T. W., aged thirty-two, the father of two healthy children, whose wife is well and has had no miscarriages. His father had sarcoma of the foot, and the leg was amputated at the mid-thigh and cured. He denies specific infection. He comes to clinic complaining of a mass on the left side, the center of which is in posterior axillary line extending from the upper border of the eighth rib to the level of the lower border of the first lumbar vertebra. When the mass was first noticed it was the size of a goose egg. In ten days it had doubled in size. At the hands of a capable physiotherapist he took diathermy for two weeks, but in spite of this latter day saint the mass grew rapidly. When first seen by us, the growth was flat, immovable, two inches

thick, three inches in diameter, hard, outline clear cut, not tender, no fluctuation, discoloration, or local temperature. He felt well but was easily fatigued. There was no chest pain. He had previously been in good health but in the last three weeks since the appearance of the lump he was failing rapidly. He was anxious and worried, had lost thirty pounds in weight, no night sweats. His temperature ran from 99.2 to 100 in the evening. His complexion was striking, having a peculiar greenish cast but without corneal jaundice. He gave the appearance of a chlorotic. His lungs were quite interesting. The right was perfectly clear without adventitious breath sounds but the left was slightly dull from apex to base both anteriorly and posteriorly, but with a striking absence of rales. The voice sounds were increased with pectoriloquy and egophony present The breath sounds were distant, were markedly broncho-vesicular throughout but had been obliterated by an infiltrative growth leaving the great and small bronchi symmetrically diminished in calibre. Having been cocky enough to have made a diagnosis of pulmonary new growth on two cases just previously I jumped upon this as a sweet and delicate morsel for diagnostic technique and made a clinical diagnosis of periosteal sarcoma with new growth into the lung by contiguity. He was sent to the roentgen ray department for deep therapy of the soft tissue mass in the left lumbar region. Roentgen ray of the bone showed no relationship of the mass to the ribs. At that time there was no fixation of the diaphragm or fluid in the chest. He was given deep therapy for fifty minutes and reported back for observation in five weeks. The mass had ceased to enlarge but there was no change in its size nor was it anymore movable, but the growth had apparently been arrested, there was now present effusion with fixation of diaphragm. Systemically he was no better. To prove that one cerebral cell was at least working, I remembered that there was such a thing as syphilis of the lung and told the unfortunate patient that his condition was 90 per cent cancer and 10 per cent syphilis. To be entirely fair with him I gave him a prognosis of not more than a year to live and intimated to him very strongly that, while he was still able to, he had better get his business together, as the growth on his chest wall had involved his lung and that he was scheduled. He agreed to the suggestion to take antisyphilitic treatment and was given one dose of neosalvarsan intravenously. He was advised by his employer to go to another clinic for examination. A visiting doctor at this clinic, hearing the case brought before the staff meeting, remarked that he had treated the patient twelve years previously for a primary lesion. Another Wassermann was made, and following as it did a recent dose of salvarsan, was positive. His mass was removed, and he was given intense antisyphilitic treatment. He made a spectacular recovery and after eighteen months observation and treatment he is apparently well.

Case No. 3. The third case demonstrates a beautiful picture of luetic bronchial pneumonia of the miliary type closely simulating miliary tuberculosis, a type stressed much in the texts and literature. The onset of her illness was of such a mild nature that she did not call a physician for several weeks and probably would not have had a doctor then except that her gastric symptoms became marked, with much dyspepsia and burning in the epigastrium and she was referred to us for stomach study. During her barium meal the flouroscope revealed a suspicious chest. The cough as a symptom increased; it became paroxysmal and strident and sounded very much like whooping cough, occurring after going to bed and rising in the morning. She was disturbed somewhat all through the day. There was considerable dyspnea on exertion. Anthracosis and tuberculosis were suspected when her family physician examined her and referred her again to the clinic for roentgen ray. Diagnosis of miliary tuberculosis was unhesitatingly made, but later a suspicion of pulmonary syphilis was added. Repeated examinations of the sputum were negative. There were a few fine rales over the chest. There was no pleurisy demonstrable, but there was much general chest pain not substernal in type as one would expect. There was no change in the percussion note. There was five pounds loss of weight in three weeks. The roentgen ray plate showed circular shadows freely and indiscriminately distributed over both lungs. The prognosis given by her family physician was a life expectancy of but a few months. This petrified and terrorized her husband but she was neither shocked nor panic stricken but packed up bag and baggage and went to her own physician in New Orleans who had treated her through the vicissitude of a questionable and stormy career. He had a Wassermann made which was strongly positive and he made the diagnosis of pulmonary syphilis. Being a very ethical and gracious physician he returned her to us for treatment. She was running afternoon fever of 101°. Her cough had increased, was still rather spasmodic, strident and exhaustive. She had much malaise, easy fatiguability, persistence of the chest pain which required opiates and continued loss of strength and weight. She was having secondary infection as her pearly sputum was becoming mucopurulent. She was given one dose of 606 and immediately began to improve. She was given doses very five days and by the end of the twelfth day she was completely relieved of all

symptoms, both gastric and pulmonary. Unfortunately she was a lady of embonpoint and many curves. Her veins were very small and on one occasion a centimeter of the solution wasted into her tissues and saw her shadow no more. We have seen her several times since and she says that she is well.

Case No. 4. Mr. M. W., 48 years old, five weeks ago, before entrance to the Sanitarium here, was taken ill in Florida with a chill and fever. He returned home and went to bed with a severe cold and cough with pain in the right shoulder. The temperature at that time was 103. The acute illness lasted about one week, being accompanied by diarrhea with considerable colonic pain. The stools have been very offensive and putrefactive, no blood present, but a noticeable amount of mucus. He has had a slight cough since the beginning of his illness with a mucilaginous expectoration, prune juice in color, with no red blood. He has fever up to 101°, appetite is poor and he has lost a pound a day for six weeks. He has a general soreness over his chest with pain in his neck and right shoulder, of which he complains bitterly, which phrenic signs drew our attention to the right diaphragm.

Physical examination showed a plethoric type of man with large thick chest. He had no stigmata of lues and denied specific history, with a Wassermann negative in three antigens. He had some dullness at the base of the right lung which merged into the liver dullness. He had a few mucous rales up to the lower border of the scapula which disappeared on expectoration. There were a few rales on expiratory cough anteriorly and posteriorly. The sputum produced was very striking. It was like grape jelly and he raised a considerable quantity daily. His cough was not particularly annoying but it did come in paroxysms, at night and in the morning, though he coughed to a lesser degree during the day. He was in the hospital six weeks and during this time of observation he had recurrent rises of temperature lasting five days each, with from five to nine days intermission. He had perpetual indigestion. When at first a roentgen-ray examination was made it showed the usual markings of a post-influenzal chest with definite peri-hilar infiltration most marked on the right side. The right diaphragm was considerably elevated presenting a torn appearance about an inch to the right of its internal attachment. At that time the right diaphragm had restricted motion but no mass was apparent. The almost daily repeated flouroscopic examinations showed a definite mass attached to and extending below the right diaphragm. Later the lower portion of the right chest showed a dense shadow with almost total obliteration of the right diaphramatic shadow. We were puzzled as to the diagnosis. On entrance tuberculosis and unresolved pneumonia were considered. But the sputum examination repeatedly made showed no Koch bacilli, only an occasional pus cell, though loaded with mucus. His blood count was 12,000, which did not change on examination through his stay. The inflammation in his right chest grew in size and density, which is not true of an unresolved pneumonia. The sputum was characteristic of neither. The opinion of the internists we had in consultation varied. The preponderance of evidence was for a primary cancer of the lung situated on the right diaphragm, although there was some argument for an amebic abscess of the liver which had developed a bronchial fistula, but the diarrhea stools were not amebic in character, no ameba could be demonstrated, the liver was not enlarged, and the condition cleared up under dietary management. A second Wassermann was negative. He was referred to the roentgen-ray department for deep tharpy, but we were advised by our roentgenologist to give anti-syphilitic treatment before deep therapy was used. It took considerable difficulty to persuade the patient to receive Salvarsan but when he finally consented the result was spectacular. Three days after the first dose was administered his sputum began to clear up and before he had finished the first series he had resumed his duties feeling perfectly well. He was dismissed in June, 1923, and the only time that he has been back for treatment is for cure of acute alcoholic attacks.

It is reported that in tubercular sanatoria there is an incidence of from 3 to 11 per cent of syphilis of the lungs. The reason that there are not more syphilitic pulmonary cases reported from the great autopsy centers of the country is that the gross lesions are the same as for any healed chronic inflammatory process of non-specific origin. The diagnosis of the condition must be on general and not definite criteria. The signs, symptoms and history must be conclusive by indirect and not direct reasoning. The presence of other manifestations such as a positive Wasserman, bone involvement, selective adenopathy, signs of cerebro-spinal involvement, history of a cough which is recurrent paroxysmal, nocturnal and early morning in type with presence of much mucus and few organisms, no tubercle bacillus on repeated examinations, a roentgen-ray that shows much fibrosis, either of the miliary type or that radiating from the hilum to the right base, must lead you at least to a consideration

of pulmonary syphilis with appropriate steps being taken to prove or disprove its existence by the unfailing therapeutic test.

This paper reminds me of an Oslerism: "Learn all about syphilis and the rest of clinical medicine will be given unto you."

DISCUSSION.

Dr. Elliott (New Orleans): I have only had two cases of syphilis of the lung in the past seven years—that I recognized. The first case came in for stomach trouble. We gave a barium meal and found gastro-intestinal tract normal but the roentgen-ray showed a beautiful lung; *lace* in both lungs like Dr. Douglas' third case. The Wassermann was negative but I got hold of both the mother and the father and found the source of the trouble. The patient has done very well for the past two years on mercury. I do not give 606 in these chronic cases. I have gone back to the old-fashioned mercury and potash. I believe I have better results.

The second case was that of a man of fifty years of age with a beautiful cavity at the right apex—a beautiful cavity, clear and distinct, profuse expectoration, loss of weight. Frequent examinations showed no bacilli in the sputum. The patient had temperature in the afternoon; in fact, all the typical signs of advanced tuberculosis.

After six examinations of the sputum, all negative, we tried the therapeutic test and the patient has done splendidly. I have watched this patient for two or three years and he is practically well.

Of course, this disease is only diagnosed by elimination. I have never heard of a case being diagnosed, you might say, primarily. They are all called cancer of the lung or tuberculosis, because we always forget—I know I forget—how often we have fever in syphilis, no matter whether the lung or some other part is involved. I have seen several cases treated for typhoid fever where syphilis of the liver was the cause of long-drawn out temperature; therefore, I say that the diagnosis of this disease is by elimination. If you have negative sputum examinations, and even though the history is absolutely negative in every other respect, try your therapeutic tests. It certainly can do no harm and may clear up the diagnosis.

Dr. Durel (New Orleans): The gentleman spoke of the therapeutic test in those cases of pulmonary lesions simulating syphilis and tuberculosis. In our department of tuberculosis at Charity Hospital, out of probably three or four thousand cases, offhand I think I can safely say that we haven't seen twenty cases of syphilis of the lung, not only by clinical observation but by autopsy. There were several cases we were sure were syphilis of the lung which went to autopsy and showed epigastric growths or a tuberculous condition.

Concerning the therapeutic test, I have been caught several times and I hesitate somewhat if I have a suspicion of tuberculosis existing in the case, especially the iodid of potash and also giving neosalvarsan in those cases that simulate tuberculosis. I have seen very active lesions stirred up that lead to final death. I have seen profuse hemorrhages. We have had one case that died. There is no doubt but that the iodid of potash given in that case lead to a disintegration of the tuberculous area and the patient died with hemoptysis.

It is not that I am not in favor of the therapeutic but I means that as a warning; when we have a dual diagnosis before us such as this tuberculosis or this syphilis, let us go slow with our iodid of potash and also with our 606. We are liable to do some damage if we are too reckless.

I congratulate the doctor on his paper. No doubt, it is very well brought out, carefully brought out and timely brought out, but let us not go to the other extreme as we did a few years ago. It was so much so that my internes would come to me and say, "This is syphilis, this is syphilis," and the first thing I knew almost all my patients had been put on anti-syphilitic treatment. One of the attendants was so sure that everybody had syphilis that one day I found out on my charts that everybody had been put on iodid of potash.

In those cases, I believe with Dr. Elliott; I am not too anxious to use the 606. The old iodids, especially the iodid of mercury, as taught by the fathers when we were students are best. I remember a case sent to me years ago for an active tuberculosis and at that time we had no Wassermann. I put him casually on iodid mercury and he had a very wonderful recovery.

Therefore, in conclusion, in the absence of bacilli in the sputum in a case simulating far advanced tuberculosis, be careful because I have yet to see the far advanced case of tuberculosis die without showing bacilli in sputum. I haven't seen one in a year. Therefore, with the far advanced tuberculosis case with a negative sputum, be careful of your diagnosis of tuberculosis. Of course, I still believe in the tuberculin test and I try in many of those cases when I am in doubt to give a dose of old tuberculin ranging from one to five milligrams of tuberculin, and if I get a focal reaction about a lesion that I suspect to be syphilitic I change my opinion and do not tag that patient as syphilitic. I am positive then that I am dealing with tuberculosis. But if I do not

get a focal reaction in a lesion that I suspect to be tuberculous in a syphilitic patient, I conclude that the lesion is syphilitic.

Dr. A. A. Herold (Shreveport): This excellent paper dovetails so well with the paper we heard from Dr. Perrett yesterday on intrathoracic growths that I can't help but refer again to the patient whom I have now under treatment on whom roentgen-ray diagnosis of malignancy was made and in spite of a negative Wassermann I finally got a positive syphilitic history, and although he is at present getting both deep therapy and antisyphilitic treatment, he is improving, and I really believe the improvement is due to the specific treatment more than the therapy.

Dr. Durel has well put it that we must be careful about giving syphilitic treatment in frank cases of tuberculosis. I think we should be careful in differential diagnosis in those two conditions—tuberculosis and syphilis. But in cases of malignancy, until the diagnosis is palpable we should never condemn the patient until after first trying anti-syphilitic treatment even though repeated Wassermann and every provocative Wassermann be negative. I have seen that in several instances and I have seen harm done with iodid administered in cases of tuberculosis where syphilis was also suspected.

Dr. Newhauser (New Orleans): There has been brought out a point relative to the treatment and differentiation of tuberculosis and syphilis which to my mind is not yet complete for the reason that we hear from one source that tuberculosis should be treated as tuberculosis really and syphilis as syphilis. My experience has been that, where we are dealing with syphilis and tuberculosis and we are undecided as to whether this individual has tuberculosis or syphilis, we should first be certain that we have either tuberculosis or syphilis or tuberculosis and syphilis. And if we are dealing with both tuberculosis and syphilis, treat the syphilis as well as the tuberculosis and how best can we get any result from an active tubercular process unless we treat the syphilis also? We know the disadvantages of potassium iodid in arrested tuberculosis and the danger subsequent to its administration, and we don't like to give it and we won't give it, but we do give salvarsan and we will treat these cases therapeutically in the Veterans' Hospital when we are dealing with both tuberculosis and syphilis. We know it is a rare disease.

It is not for me to stand here and tell you gentlemen what you should do and what I should do. It is rare but we do the best we can. We must remember before we are satisfied that a case is syphilitic or it is a syphilis of the lungs, there must be found very definite evidence of syphilis. We get 100 per cent Wassermanns in individuals that have tuberculosis and we must never lose sight of one fact, and that is that you can always have tuberculosis ingrafted on a syphilitic process due, of course, to low resistance.

Dr. Eshleman (New Orleans): I think there are two types of syphilis of the lung which were not mentioned in the paper, or were not brought out strongly anyhow—syphilis of the respiratory tract, I should say, instead of the lung. Ulcerative conditions in the bronchi or in the trachea at the point of bifurcation, I think, exists in syphilitic conditions similar to what exists in the larynx and merely an extension downward. Those cases are almost invariably undiagnosible. There is no thoracopneumonic test such as spirochetal sputum or such.

The other type, besides the type that the doctor mentioned of indurated area and gummatous areas in the lung, is a late process, it is a process of fibrotic change in the lung which is known as fibrosis of the lung. That is, of course, always a doubtful condition too, and often is undiagnosible even at autopsy because of the fact that the pathologist cannot definitely establish the fact that the fibrosis is due to tuberculosis or syphilis or what not.

Dr. Douglas (in closing): I want to thank my friends for their liberal rescue in giving me some discussion on this paper. I thoroughly concur with Dr. Durel about treatment with the iodids of these cases of suspected tuberculosis that might be syphilis. We attempted that several years ago with a client of ours with rather disastrous results and now we don't even give the neosalvarsan. We think the sulpharsphenamin is much less toxic and we usually give them a dose to see if they get better.

Now, in the combined lues and tubercular chests, we are rather inclined to let them alone. I have one in mind now, a very dear friend of ours and of the clinic, who has had tuberculosis a number of years and has visited all the sanatoria, and his sputum is fairly rich with bacilli. He also has a profound arteriosclerosis, nephritis and a damaged heart muscle. We are turning him over to the good graces of his family and the sympathy of his physicians and we are letting him go toward a tubercular and a leutic death, because we feel that if we do relieve him somewhat, the damage has already been done, and we but hasten it by injecting into the veins or giving by mouth toxic substances that he can bear very poorly.

I wish to thank the doctors for helping me out as they did. It makes me feel better, as a stranger in New Orleans.

ENURESIS IN FEMALE CHILDREN.*

ITS TREATMENT IN OTHERWISE NORMAL INDIVIDUALS, WITH REPORT OF CASES.

A. MATTES, M. D.,

NEW ORLEANS.

Bed wetting as a symptom is commonly seen in the young of both sexes. Its presence is noted in a number of conditions that have for their basis some congenital development anomaly, or some disturbance of the endocrine system or the nervous system. This paper is based on its occurrence in 20 female children that present no other abnormality than the occasional presence of a low grade cystitis. It will therefore be seen that the subject to be discussed is well limited.

In "Modern Urology" by Cabot, the discussion of enuresis is omitted. Koplik states that it is a functional neurosis of the bladder, in which urine is passed involuntarily. In girls Koplik has seen it persist into adult life, its treatment presenting a serious problem. Holt briefly passes over the various malformations and other organic and nervous diseases, as well as tumors, that may cause it, and spends much time dealing with the so-called neuroses. He says, "Most infants can be taught to evacuate the bladder at the end of the first year, and usually control is acquired during the second and is complete by the end of that year, the time depending on the training." If no control is present by the end of the third year, during waking hours, incontinence may be said to exist.

E. L. Young in 1922 stated that all methods are more or less futile, all more or less ridiculous and some of them dangerous. He mentions all forms of operative procedure and suggests nothing of great value. Custom in 1921 covers well the medical treatment of nocturnal enuresis and speaks very favorably of the use of these measures in conjunction with the treatment of any local condition. He mentions the use of instillations of Ag NO_3 W. E. Carter in 1921 quotes Sachs, who in 1896 believed in training the nervous system as a cure for the trouble. He remarks that complete function can be hastened through education by repetition, and that success in the treatment depends on how carefully instructions are carried out by the mother. The literature is replete with suggestions of a medical and surgical nature. The drugs of years ago still remain standard.

*Read before the Louisiana State Medical Society, Monroe, April 15-17, 1926.

CAUSES.

The cause of incontinence may be in the central nervous system, in the urine, in the bladder, or in any of the adjacent organs. Conditions to be borne in mind are: cystitis calculi, contracted bladder, irritation in neighboring organs, rectal irritation, vaginal irritation, adherent clitoris, vulvo-vaginitis, heredity, family trait, and habit.

SYMPTOMS.

It may be nocturnal, diurnal, or both; habitual, occasional, or it may follow some exciting cause. Pain may be present, but not usually so.

PROGNOSIS.

Holt states that properly managed a cure can be accomplished. Again, some may resist treatment and cease spontaneously at puberty. Others fail to benefit by any known measure. Koplik states that many cases improve only to be subject to relapses. In my series the results have been uniformly good.

From a review of the cases that will be presented, I have been able to classify the causes in the following groups: Psychic, neurogenic and mechanical. Of the mechanical factors, there is (1), the increased acidity of the urine; (2) habit; (3) lack of education on the part of patients so that they are unaware of the existence of a vesicle spincter. A combination of psychic and mechanical factors: In this state, the

sphincter is relaxed or there is a sluggish sphincter action caused by failure of patient's cognizance of the ability to hold the urine when the desire to void arises. All three factors play a part in vesicle neck irritability due to hyperesthetic nerve endings, trigonitis or highly acid urine.

If these causes or predisposing factors are borne in mind, it can readily be seen that in order to overcome such a condition measures must be instituted that will decrease urinary acidity, stimulate sphincteric action and control, and awaken the patient to the fact that, in order to urinate, an effort must be made or no urine will flow. These measures are briefly enumerated as: 1. Alkalinization of urine, 2. Reduction of fluid intake after 3 to 4 p. m., 3. The last meal never later than 4 to 5 p. m., 4. No sweets or pastries, especially in the afternoon, 5. Voiding before retiring. The above suffices in the average case. If improvement is not noted in two days, drugs are prescribed—sodium bromid and tinct. hyoscyamus, three to four doses a day. An improvement will be noted where nervous excitability of the centers play a part, as well as peripheral irritation and low grade trigonitis and posterior urethritis. Local measures are now employed to increase the tone of the vesicle sphincter. The local treatment consists in the use of one to two c.c. instillations of silver nitrate in concentration 2 to 6 per cent. A small cannula is used for this purpose. The treatments are given every second to fifth day, and number two to ten or more. Immediately there is an improvement and within a week or ten days there is a disappearance of all tendency except in the most obstinate of cases, and even these are improved or cured, although with a little longer treatment. Dilatation of the urethra is a valuable adjunct at this stage. Silver nitrate acts by coating the entire urethra with an albuminate of silver, desensitizing the sensitive nerve endings, and by its penetrating, irritating effect throwing the vesicle sphincter into a state of tonic spasm. The excess of silver runs both forward and backward. In the latter case, it is diluted by the urine, and remaining in the bladder tends to increase its tone. The tendency to void involuntarily is reduced or disappears, and this effect will continue for several hours to days. No case reverts to its old status, after treatment is instituted. The number of wettings is decreased to the surprise and astonishment of both parent and child. There is no urging, bribing, or reward of any kind necessary to assist or aid in the treatment. No stricture or bad result has been noted in any of the cases.

The intra-urethral treatment of enuresis properly applied offers a very valuable addition to the measures commonly employed.

Of the twenty cases considered, eleven were white and nine colored. They were seen in the outdoor clinic at the Charity Hospital of New Orleans during the past four years. The oldest girl was thirteen the youngest four. The shortest treatment was several weeks, the longest five months. Six cases were discharged as cured. In all six, silver nitrate was used. One case is still under treatment and may be said to be cured. Twelve cases deserted, improved. Of the twelve, silver nitrate was used in six. One case deserted unimproved after three visits. In this case, there was an associated cystitis.

On account of lack of space the detailed histories of these patients will be printed only in the reprints of this article. It will suffice here to quote briefly the records of two patients.

Case 1: F. V., a white female child, aged 13 years, was brought to the clinic on account of bed wetting almost nightly. Examination of the urine, which was clear, showed nothing abnormal. On the first visit, 15 c.c. of 10 per cent argyrol was injected in bladder, and a teaspoonful of a prescription of tincture of hyoscamin and sodium bromid, drams 4, diluted in water to make 4 ounces was given 3 times a day. At the same time sodium bicarbonate, 1 dram, twice a day was ordered.

On November 14, 2 c.c of silver nitrate, as a 2 per cent solution, was injected in the bladder. This was repeated on the nineteenth. On November 28, the urethra was dilated. In the course of the next two months the 2 per cent silver nitrate solution was injected 10 times with improvement in the complaint, January 30, 5 per cent solution of silver nitrate was injected, and since then the patient has had no further trouble.

Case 2: W. M. F., a colored child, aged 7 years, was admitted to clinic on account of wetting the bed at night since birth. The urine of this child was clear, with an occasional leukocyte.

In a period of 2 months 4 injections of silver nitrate were given, and then an injection of 2 per cent argyrol, and after this 2 more inejctions of 2 c.c. of 2 per cent silver nitrate. February 22, there had been no further wetting of the bed. The child's mother was instructed to bring her back if there was any further wetting.

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DISCUSSION.

Dr. J. R. Stamper (Shreveport): Mr. Chairman and Members of the Society: It is not my object to discuss this paper but there is one thought I would like to impress upon the doctors and the laity and the nurses who might come in contact with these cases, or some friend might ask them what could be done for them. They should not be neglected because most of them, if neglected, or fussed at about wetting the bed will soon become more or less cowardly and not develop and thrive in school as they should.

That is the thing that I want to impress upon the members of the Society. As to the classification of this condition, in a general way I would classify the cause as those causes in the urinary tract such as a very mild nephritis, cystitis, stone or whatever it might happen to be. The treatment would naturally be correction of those causes. There are other causes such as systemic conditions like hypothyroidism, which I think is one of the most important causes in the child, especially that type that is a little backward and doesn't thrive at school like he should. Other causes such as anemia, etc., bring about general debility in a rundown child and it doesn't thrive.

So much for the causes, and the treatment is to correct the condition that exists. The thing that I would like to impress is always to advise the parents of those children to consult a doctor and try to have it corrected before the school age. Just a couple of doors from me is a child. Every morning as soon as the sun come out you can see the bedclothes hanging on the wire. So far as I know that child's parents have never consulted anybody about the bed wetting. I think that child is one that comes under the hypothyroidism type because he looks like that type.

Dr. H. W. E. Walther (New Orleans): Urology in its early days limited its efforts toward alleviating conditions in the male alone. Later, thanks to such pioneering work as that of Dr. Kelly and Dr. Burnam, we devoted more serious attention to urinary ailment in the female. In recent years, due to the enlightening paper and investigations of Hyman and Kretschuser and others, in acquainting us with the fact that cytoscopy, by using modern infant cystoscopes, could be employed in children as well as in adults, we are now in a position to more fully and more scientifically put our finger on the source of trouble.

I rose primarily to make a plea for the more careful study of the urine in little girl patients. What applies to the adult female; that is, always get catheter specimens of urine, equally applies in little girls. We have small catheters just as we have infant cytoscopes, and these little ones can be catheterized with very little trouble if we gain their confidence, and the catheter specimen is the one that should be studied.

We have been prone in the past to be too lax and looking too lightly upon bed wetting in children. Urinalyses were frequently omitted and one medicine after another was administered by mouth without any benefit whatever. Many mothers, after going the rounds of a few physicians ,gave up the matter as hopeless, thinking that the doctors could not be of any aid.

If the remedy that Dr. Mattes presented today of using installations in the bladder of silver nitrate is given a trial in these conditions that are often due to the bladder, particularly the bladder neck, we will be surprised how many of these little ones we can relieve in a very short time.

I cannot condemn too strongly the use of one to one million silver nitrate or weaker. We don't

get any results with that strength; unless we use from one-half to two per cent silver nitrate in installation, of a dram or two, we are not going to get any effect from our silver. If we do get our effect from silver it is prompt and very convincing.

Dr. Frank J. Chalaron (New Orleans): Dr. Mattes has covered the subject rather fully but still after all that he has said there remain "that class of cases which fail." It has been my misfortune to meet with cases of that kind, especially about the time of the war where several men had been refused admittance into the army for bed wetting ,a habit that had been established in early youth.

In those cases I used a method that had been suggested years ago by Cathelin of the University of Paris, and that is the epidural injection of one per cent novocain in doses of about ten c.c. In three of the cases that I had the result was marvelous and the men were able to join the army.

In the case of a young girl in whom bed wetting had been established since the age of five and who wet the bed at irregular intervals and on whom the nitrate of silver, belladonna and electrical treatments had been tried, the Cathelin injection gave a definite cure. We needed two injections to produce the cure.

The causes of bed wetting are numerous. I agree with Dr. Mattes entirely that before we attempt to treat a case of bed wetting, a most thorough examination and daily examination, not only of the urine but of the patient should be done.

Dr. Mattes (closing): I wish to thank the members for their discussion. The subject is extremely limited. Other conditions that cause enuresis are not included. I will briefly review one case that is mentioned here. Case No. 11: A white girl aged thirteen. Bed wetting almost nightly and one to two days a week. The urine is clear and is negative. All the specimens were catheterized. 15 c.c. of 10 per cent argyrol was instilled in the bladder and she was placed on sodium bromide and sodium bicarbonate and tincture of hyoscyamus by mouth. Reported in four days, having wet the bed once. 2 c.c. silver nitrate was instilled in bladder and urethra. She returned five days later improved, with a notation of less bed wetting. Silver was again used. Nine days later more improved. Three days later improvement continued. At that time she had an attack of flu and her condition for the most part recurred. She was in bed for three weeks during which time she complained as much as prior to treatment. She reported back Jan. 1st. Silver was used. On the 5th she was improved; on the 7th, improved; 9th, improved. She was instilled each time with silver nitrate. On the 12th she had not wet the bed in ten nights, or her clothes in the daytime. Seven days later with instillation then of 5 per cent silver nitrate (I increased the percentage) there were two wettings. From the 19th of Jan., 1925, up until the 30th of Jan., she had wet the bed only two successive nights. 5 per cent silver was used. Returned eleven days later, during which time there was no wetting. Observation continued a month, patient remaining well.

Here is an obstinate case of enuresis that was carried on and properly handled, I think, and discharged cured. The parting shot is this, in the treatment of enuresis in individuals (female children) that show no other cause, medical measures plus instillations of silver nitrate properly applied and properly timed and in the proper percentage will cure all cases. I make that statement not advisedly because I have not seen the case that has applied to the clinic in the last five years that could not either be cured or improved to such an extent that they deserted.

EPIDEMIC ENCEPHALITIS.*

A FACTOR IN SOME MORBID MENTAL STATES.

HENRY DASPIT, M. D.,

NEW ORLEANS.

Within the past few years, we have been meeting in private practice, general hospital clinics and in hospitals for mental disorders ever increasing numbers of morbid mental states which on close analysis have been placed as residual to acute epidemic encephalitis, or what is more likely, a demonstration of chronic epidemic encephalitis. In our courts and correctional institutions, many individuals have been encountered in whom conduct and moral disorganizations, without demontrable psychosis, have occured as the result of the damage of an epidemic encephalitic episode. In the handling of this latter group, a very complex problem has developed which is far from any reasonable solution. It would be well for the psychologists, especially in dealing with disorders of be-

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havior in children, to keep constantly before them the possibility of this association.

The time limitation, properly imposed by the society, precludes a detailed consideration of this very broad topic and today we must content ourselves with generalizations.

There can be no doubt whatever that epidemic encephalitis is extremely frequent in this country and section, out of all proportion to the health organization statistics, if one may judge from the number of classical encephalitic types met with by neurologists. The fact that the disease is reportable for statistical purposes alone gives us little information as to its percentage occurrence, as there seems to be an inherent disinclination on the part of most of us to report almost any disease condition and probably that due to the great variety in the grouping of the symptoms of the disease, as well as the varied grades of the intensity of the initial attack, diagnosis is often a matter of much difficulty. Incidently there can be no doubt that a great tendency exists to dub almost any acute, apparently minor, febrile condition which may be associated with catarrhal symptoms as la grippe, influenza, etc. Relatively inconspicuous signs of involvement of the central nervous system frequently escape notice. That epidemic encephalitis may attack any level in the nervous system is now well recognized. Lethargy is not to be anticipated in the greater proportion of cases and cranial nerve disturbance may be entirely lacking. Rather than to regard many of the distressing symptoms as residuae, it is the custom of the clinic from which this paper arises to consider the disease as of acute and of chronic phases. Also that many of the chronic pictures occur where there is no history of the acute, sometimes lethargic, initial episode. The occurrence of relatively acute exacerbations in the course of apparently, fairly well stabilized conditions would rather speak in favor of a chronic toxic or infectious process that for the residual effect of a completely expired, acute disease.

In keeping with the past observation of others, it is our experience that there is no specific mental picture, which, when considered alone and without scrutiny of associated physical disorder of central origin, either in the present or the relatively recent past, would justify the formulation of a psychic syndrome characteristic of the disease. This is especially important in psychopathic hospitals where, either due to the lack of observation on the part of previous medical attendants or the simple, routine disregard with which data is furnished these institutions as the result of a notorious lack of interest in psychotics on the part of general practitioners, great difficulty is experienced in the proper evaluation of these cases and they are often classified in the more well known psychotic groups. We have also observed that there are many instances where the onset was characterized by a definite acute epidemic encephalitis with marked psychic symptoms or where the mental disturbance developed sufficiently close to justify the association and where the mental disorder has persisted and been of such a nature as to necessitate hospitalization, many of these individuals reach psychopathic hospitals without any recognizable physical finding attributable to encephalitis. This again stresses the necessity of most careful scrutiny into the past history of the case, both for personal information as well as for data for the final holding institution. We have seen a few cases which for some time we regarded as schizophrenias, who showed nothing somatically and where the history given was in no way suggestive, only later to develop Parkinsonisms easily differentiated from schizophrenic negativism and which served to properly place the condition. Just as one is not inclined to regard every psychosis developing in an individual showing a positive spinal-fluid Wassermann reaction as necessarily syphilitic in origin, we also consider that epidemic encephalitis re-

quires careful consideration before conclusion is reached that it is the essential factor. The relation between the psychotic demonstration and the encephalitic attack should not be too remote and where the interval is great, and there exists no physical disorder consistent with encephalitis, it is wise to consider other possible etiology. This is especially applicable to adult life, though some observers have credited the association after a lapse of eight years. There can be no doubt that the disease occurring in infancy and early childhood may do terrible damage to the unhardened and extremely vulnerable brain of this period of life and without leaving any marked physical handicap prepare the soil favorable to the development of adolescent or adult psychosis. If there is anything to the belief that heredity burdening demarks those cerebral traumata that will show resulting psychotic manifestations, the deleterious effect of the organic brain changes of encephalitis is beyond question.

Though somewhat contrary to some of the previous remarks, and yet in no way inconsistent, is the observation that epidemic encephalitis, acting as any other toxic-infectious state or cerebral traumata, may liberate classical schizophrenic or manic-depressive psychoses depending on the constitutional make-up of the individual. Also, that even without primary mental disturbance from the encephalitis per se, the resulting physical handicap may represent a conflict to which the unfortunate is quite unable to adjust and a classical psychosis will be unescapable. It is probably quite true that the intensity of the traumata or the conflict, rather than the inherent endowment of the patient, is the principal factor in essential mental disease. We have seen in several instances where the acute encephalitic process has activated previously latent, asymptomatic cerebro-spinal syphilis.

The whole gamut of the psychoses may be met with in epidemic encephalitis, the marked delirious pictures with active hallucinations and confusion, the syndromes of the Korsakoff type, marked manic states usually with clouding, depressions especially with a suicidal trend, schizoid and syntoid presentations, paranoid states with or without deterioration, spasming disease with or without mental symptoms, and simple progressive deteriorations either affective or intellectual. In children especially has been noted the occurrence of disturbances of consciousness, with and without motor phenomena, clinically meeting the requirements of so-called epilepsy and definitely ascribable to the cerebral damage resulting from epidemic encephalitis.

No less interesting and certainly no less important are the character alterations, disturbances of conduct which may amount to definite delinquency and bring the individual into conflict with the law, moral delapidation, etc., occurring in children following, or as a part of, this disease. While this brings a new group requiring radically different handling from the usual delinquent or psychotic, it opens a most interesting field for thought and investigation to those of us who do not lean on the slender support of psychological clouds and psychoanalytic procedure but look for an organic background in all diseases, physical and psychic.

In line with this thought is the fact that in a norm of admitted good heredity and excellent environment, the occurrence of a definitely recognized organic disease with involvement of cortical, basal ganglion regions, or both, marks the development of morbid mental states, psycho-neurotic or definitely psychotic, which even as yet are by some ascribed to psychogenic factors alone. Also that the transition from mental health is rapid and follows the organic process without the injection into the life of the individual of any other factor.

Entirely outside of the consideration of mental disease is the frequently reported effect on mental development. No attempt is made to check up the massive litera-

ture on the subject and no claim is made for originality. It is fairly well established that following acute attacks of epidemic encephalitis mental development may be arrested at any level, the mental level lowered, disturbance of conduct and moral sense may take place with or without evidence of deficiency and even with new precocious trends. Naturally such effects are to be expected in the formative period, childhood, but many personality alterations have been reported, and some observed by us, in late adult life.

Our acquaintance with the disease and opportunity to make follow-up observations on acute cases presenting mental symptoms is, unfortunately, not sufficient to justify any deduction as to ultimate prognosis, at least from the psychiatric viewpoint. We are nevertheless inclined to believe that only a small proportion of the cases showing acute psychotic reactions in the early stage of encephalitis remain morbid and that the conduct disturbances of childhood, developing on this basis, may be expected slowly to improve. The observation of others that no one is ever the same, psychically, after encephalitis may be true, but we are inclined to doubt this.

I refrain from saying anything pertaining to therapy as the treatment naturally devolves itself into what may reasonably be done for epidemic encephalitis. What can be said as to consistent therapy in a disease where the etiology is quite unestablished? Many quite fantastic and empiric proceedures have been advocated which amount to little more than shooting at the moon with a blow-gun. As to the handling of the associated morbid mental states there is nothing to offer other than the methods employed in the treatment of the psychoses in general.

DISCUSSION.

Dr. E. McC. Connely (New Orleans): Dr. Daspit has left very little to discuss except to reiterate. I think he has well brought out the point that the frequency of encephalitis is little realized if we look over statistics. If we go to the literature, however, and see the great mass of material that has been produced in the comparatively short time that we have known of the disease, we realize how frequent it is and how widely distributed as to area.

In December of 1925, it was estimated there were some 3,000 articles on the subject. I don't know what figure has been reached now but in almost every magazine we see there is a report on it. Of course, the discrepancy, as Dr. Daspit has pointed out, is probably due to diagnostic difficulties and probably due to the general negligence of most of us in reporting things.

The mental picture is so varied that it has been impossible definitely to define any particular syndrome. A good many people have made efforts to establish a picture without any degree of success.

Of course, it has been confused with all of the various psychoses, notably schizophrenia, and when we realize that it might act, as Dr. Daspit says, as a precipitating cause for any incipient psychosis, we can see how difficult is would be to draw a diagnostic line. The disease process will attack practically any part of the central nervous system and of course that accounts for many variations of the mental symptoms. We have to think also of the effect of the toxins on the individual psyche of the patient. Very few patients, practically none, react exactly in the same manner even to the old established psychoses.

If I might use an illustration with which some of us are familiar, at least those who are old enough, you take 100 men and give them alcohol to drink; you won't get any two of that hundred who will react in exactly the same manner to the alcohol. It is the same way with any other toxic substance that we take into our bodies, I think.

The character changes, as Dr. Daspit points out, are usually found in children. Brown and Partridge of Philadelphia have made some reports on a group they had under observation for about a year, I believe. They found that they were amenable to treatment but required definitely different handling from that given the ordinary mental defective. They reported that practically as a whole the group had progressed and would give us a rather optimistic prognosis at least in children.

I am not prepared to accept the statements by some authors, however, that the character changes only occur in children. I have seen some cases who apparently have character changes after having encephalitis in adult life. I have recently had a man who had definitely come in conflict with the law and was definitely asocial, who, so far as we were able to ascertain, had been a perfectly responsible, decent citizen prior to ence-

phalitis. Unfortunately his home was some distance away and we weren't able to get very complete data of his past. But I felt that there was sufficient question of encephalitis being responsible for his conduct to rate him as disabled. He was an ex-service man.

Dr. C. S. Holbrook (New Orleans): Mr. Chairman, from the literature we have been inclined to think that encephalitis was a disease that we saw during the periods of the war, in 1918, 1919, and 1920, but we are seeing a great deal of it here in Louisiana at the present time, a great many active cases. In any of the large clinics and in hospital practice, one can see at least half a dozen cases of acute encephalitis a month. The diagnosis is frequently not appreciated. The misnomer of sleeping sickness that has been applied to this disease often prevents arriving at a correct diagnosis.

Lethargy, as Dr. Daspit brought out, occurs in very few cases; I should say not more than a third of the cases. Another third of the cases are apt to have no disturbance at all. Another third of the cases are apt to be excited; insomnia is frequently present. So when we consider encephalitis and have in mind the picture of sleeping sickness, we are very apt to mistake it. The transient ocular motor disturbances that may go to the oculist or may be complained of to the general physician and not a great deal of attention paid to, are frequently evidence of encephalitis. The possible encephalitic disturbances and especially, as Dr. Daspit had in mind, the mental disturbances following encephalities are sometimes recognized by the patient being able to give a history of so-called influenza or grippe, fever, malaise, with seeing double for one or two days.

The true recognition of the condition is often not arrived at until a year later or two years later when some of the chronic disturbances arise that cannot well be overlooked. The Parkinson type of residual frequently does not show up for a year or two or several years after the original attack of encephalitis.

In children, the gross disturbance is generally a matter of the production of imbecility, or arrested mental development. These children develop what is thought of as brain fever, which is encephalitis, and after that their mentality is very grossly interfered with. They become arrested mentally. Other children, older children, have decided conduct disturbances. A child that has given no trouble before drops into the group of difficult children. Then there are the children who become decidedly vicious after such an experience and really have to be taken out of school and frequently placed in institutions.

The Parkinson syndrome, the parlysis agitans syndrome, is usually seen in men and comes on as a more frequent result in the adult than in any other stage of life. These people develop the typical picture of Parkinsonism, usually with a history of grippe in which they saw double or ill-defined illness. I believe that this should be considered as chronic encephalitis, as Dr. Daspit has suggested, these cases of Parkinsonism usually continue to grow worse and the patient dies. Occasionally the process becomes arrested, but if it were only an aftermath or only a sequela of the disease the disturbance would remain in status quo. It would not get progressively worse. Almost all of these Parkinsonian disturbances get worse and the patient dies.

I wish to close my remarks by just calling your attention to the prevalence of encephalitis that we now have. We are seeing it every day and I am inclined to think the cases that we do see now are more fatal than those we saw a few years ago

Dr. John B. Elliott (New Orleans): In 1921 I was called to see the 13-year-old child of a friend of mine. The child had had a temperature for about three weeks. The blood showed a weak Widal. We thought the case one of typhoid fever. The child went along for six weeks with a low temperature and seemed to recover very nicely. In January, 1925, four years later, the mother came to me as a friend, not as a doctor, and said, "Please examine my boy. He is getting so bad. He has been put out of three schools in the last four months." That was the story told me. The boy had been stealing things, and had become unmanageable.

The boy was brought to the office. I found a very well developed boy, but I noticed he had a slight twitch in the right arm and a slight hesitation in speech and a peculiar fixation of expression. Now, there was a case that I had misdiagnosed four years previously. That boy had encephalitis when I saw him in 1921, had gotten along fairly well for four years and then developed this typical syndrome of encephalitis. The boy, today, is doing a little better, but I am not hopeful about these cases.

I saw eighteen cases in one room in Philadelphia last spring with Dr. Spiller and I have never forgotten that room. I think it is a more common disease than we think. Whenever I see a case I am doubtful about, I "pass the buck" to the neurologist.

Dr. C. C. De Gravelles (Morgan City): Dr. Elliott stole my case away from me. In 1920, I think it was, I had a chap about 12 years old at that time, an exceptionally intelligent boy, stood very well in his school work. He developed what I thought was typhoid fever at the time. In fact, he showed a very positive condition. The case ran

the typical course for about six weeks. He recovered, but after his recovery he became very vicious, so vicious in fact and this state progressed so rapidly that we are now thinking of sending him to Monroe to the reform school up there.

Prior to his typhoid or his possible encephalitis, he was an exceptionally bright and good chap. Since that they can do nothing with him in school, he will not study and he is forever getting in trouble with the law.

The question arises in my mind now, is it possible to have both conditions existing at the same time. I would like for Dr. Daspit to tell us, please.

Dr. L. L. Cazenavette (New Orleans): As has already been brought out by previous discussors of Dr. Daspit's paper, the subject of encephalitis, epidemic encephalitis, deserves more attention than has been given it heretofore. This disease should be kept in mind as the possible cause of a typical form of nervous and psychotic disturbances seen particularly in children, though adults are not exempt. The fact that these disturbances may, and they frequently do, present themselves long after the initial period of the disease recalls the necessity of emphasizing the following point.

As far as we know, the disease is due to a filterable virus which enters the body through the respiratory tract and curiously enough affects the nervous system only, the central nervous system. In other words, other organs like the heart, lungs, kidneys, etc., are not affected. The virus expands its energy on certain portions of the central nervous system. Wimmer, in his magnificent monograph, entitled chronic epidemic encephalitis, brings out this important point and quotes Netter: Encephalitis may last a very long time, many months, many years—the virus remains in nervous centers, just as that of syphilis.

Syphilis has its initial stage; the secondary stage may be noticeable or not; the so-called tertiary stage may show its manifestations many years after the initial stage. During that long period of time, the patient may feel fairly well, but the spirocheta may still be there. Some other disease may come along and then the latent syphilitic manifestations may flare up. The same may occur in encephalitis. The virus may enter the system, remain there for an indefinite period of time, apparently dormant, when an acute illness may set this virus at work again and we then have the chronic encephalitis conditions presenting themselves long after the initial stage. This does not imply that the chronic manifestations of encephalitis whether in the neurological or mental sphere would not occur without the intervention of an acute malady.

Dr. T. J. Perkins (Jackson): I am delighted to know that it has been brought out so forcibly that the mental manifestations of chronic encephalitis are rather remote and I would like, just here, to emphasize the point that Dr. Daspit brought out, and, that is the necessity of the complete history in these cases. Cases coming to mental hospitals, without a very complete history, present a problem of differential diagnosis. The personality changes so closely resemble the personality changes in dementia precox that, without a history, it is almost impossible to make the differentiation and, I feel that, the necessity of furnishing a very complete and definite history before the patients reach the stage of mental dilapidation, which necessitates their commitment to a mental hospital, cannot be brought too forcibly to the attention of the mental profession.

Dr. Henry Daspit (closing): I first wish to thank the gentlemen who discussed the paper. The discussion sounds almost like a love feast when it was expected to find some real conflict in ideas.

Undoubtedly, we should give the question of epidemic encephalitis a great deal more attentio than we have, and incidentally, a great deal more study.

In response to Dr. DeGravelles as to the conduct and personality disturbances in his patient probably being of the nature of an epidemic encephalitis when he had arrived at the conclusion that typhoid was the factor: I think that we are justified in presuming the development of encephalitis from varied causes other than the epidemic variety. We may have in early childhood material damage done by the encephalitis of measles, scarlet fever, typhoid or what not. I do not think that Dr. DeGravelles should discredit his primary diagnosis. Many other things than epidemic encephalitis may bring about such changes. An exemplification of the attitude of some medical men toward encephalitis happened out in DeGravelles country, just across the river from him. A patient of mine, a classical case of chronic encephalitis Parkinsonism, was there for a little rest. He was receiving scopolamin as this is the extent of our real therapeutic effort in such cases. He saw this particular doctor, who is a most excellent surgeon, and asked his advice. He was told that there was nothing whatever the matter with him, that he merely imagined he was stiff and that scopolamin was only good for twilight sleep.

The remark that the causative agent was a filterable virus leaves me without comment, as when febrile conditions are unexplained as to etiology, the pathologists always indict a filterable virus.

PHYSICAL THERAPY IN EVERYDAY PRACTICE.*

WILLIAM A. LURIE, M. D.,

NEW ORLEANS.

The position of physical therapy in medical practice of today is perhaps no better indicated than by the importance attached to this branch of medicine by the American Medical Association. The establishment of the Council of Physical Therapy as a permanent committee of the society places the same safeguard over this part of medical practice as has existed for years in regard to the official acceptance of other orthodox means of therapy. This council should serve a dual purpose. It should protect the public against quackery and charlatanry in medicine, as it pertains to this branch of medical practice, and on the other hand, protect the medical profession from exploitation by manufacturers who produce fantastic and useless machines with mythical powers. The public needs protection, for they have no means of identifying good from bad in physical therapy. They are at the mercy of the cultists who use these means to impress their patrons rather than actually to attempt to heal them. For their protection, therefore, and for the protection of the medical profession, this council functions.

The council on physical therapy has made several recommendations, the chief of which are embodied in the statement that treaments by non-medical means should be considered only in addition to regular forms of medical treatment. They discourage physical therapy as a means of treatment in the hands of non-medical practitioners and ratify it as one of the triad of medicine, surgery and physical therapy. They feel that in this manner useless treatments will be curbed and the tendency of self-treatment will be lessened. The same objection is cited by them in the use of one form of physical therapy as is mentioned when a hobby is followed in any branch of medicine. The hobby is ridden to death.

Medical and surgical cases of acute and chronic type are benefited by physical measures. Like acute cases of any nature, there are many that are self-limited, and in them any simple or single form of treatment may prove of benefit. The chronic cases however require a variety of forms of treatment. These should have physical treatments properly given, properly timed and given in the proper sequence. To give treatments properly, a correct technic is necessary. In this direction especially lies the great difference in practice by non-medical means and the regular form of practice. In the applications by non-medical means the patient receives a curative dose of some form of therapy to which he should respond or react. It is at once apparent that treatments of this nature are time-consuming. Time is required to make the different applications, and time must be allowed to develop the necessary reaction while under treatment. The success or failure of physical means is often measured by the time given to the treatment as well as their administration in the correct order. Considering the chronic ailment of the patient, therefore, its treatment requires the application of several physical means, each in prolonged application and over an extended period of time. There are few patients who can afford to install the devices for their own treatment, or few physicians whose practices are such as to warrant their purchasing the means to treat these patients at home, devoting to each the time to give a proper treatment. So the use of physical means by the individual practitioner in his own practice, to which he devotes a definite set of office hours, is impracticable. Physical therapy would more properly be practiced by a group of physicians where one is in charge and where all the necessary apparatus to give every form or combination of treatment is at hand and thoroughly under-

*Read before the Louisiana State Medical Society, April 26-28, 1927.

stood. In such an institution, treatments may be prescribed much like medicine is today. Under such conditions some astonishing results may be demonstrated in chronic, refractive cases. This statement is based on my own limited experience with a few of the newer forms of physical treatments, in a limited practice extending over a period of about six years.

Before recounting several case histories I want to make one observation.

Treatment by physical means in no way interferes with the treatment of any case in any other recognized manner. However, to place credit where credit is due, observations must be made through a newer conception of symptoms, pathology and reactions. Not that symptoms may be different, but by physical means they may be ended or altered in a manner that cannot always be explained through our present conceptions of them. Pathology is no different, but certain physical means are specific for many forms of tissue changes. These treatments often result in the happy regeneration of tissue and the correction of the dyscrasia. So, to look upon physical therapy like medicine of old, is not to do so with an open mind nor the vision of present day progress. To treat a chronic disorder of any individual organ as a specific entity without relation to the general system, or to consider that conditions of the entire body may have no influence on either a local lesion nor the function of all organs, is a fallacy. Rarely will physical treatments independently directed to some special organ produce any greater benefits than result from any other form of treatment. However, symptomatic treatment by physical means is more easily and better practiced than through medical prescription. The relief of symptoms in this manner often unmasks the hidden etiological factors. This aids in the cure of many chronic cases. This is particularly illustrated in one case history herein reported.

There is not the time to describe the different forms of treatment nor their technic. Suffice it to say that electricity is the force which develops the forms of light and heat used in the cases here reported. Light is of ultra-violet character as produced by the mercury quartz vapor lamp while heat is developed by the high frequency electric current as the violet-ray or diathermy. One particular virtue to the ultra-violet therapy is its effectiveness in the relief of pain. In 1924, a series of cases of pain about the head particularly of neuralgic type were reported by me before the American College of Physiotherapy and X-Ray, now the American College of Physical Therapy. These cases seem to be the first reported using ultra-violet radiations for pain about the head. A Muller, Zimmern and Cottenot and others recently report success with roentgen ray in pain and facial neuralgias.

Because of the remarkable results experienced in these cases, pain as a result of corneal ulcerations and acutely infected eye conditions was treated by this means. Here 100 per cent effectiveness can be reported, with results demonstrable in from 24 to 48 hours. Because of these results I feel I could urge this form of treatment for the relief of pain if for no other reason. However, the continuation of this treatment has a happy effect on the pathological condition if local, so in addition to its use as an analgesic, or sedative, it can be recommended as a curative measure.

The technic of the ultra-violet applications in facial neuralgia is based on the directing of the rays from water-cooled quartz mercury vapor lamp to the ganglion. This requires the use of special applicators. The nearest route to the Gasserian ganglion is through the mouth behind the malar process and between it and the zygomatic process, focusing the rays backward, upward and inward. In some instances raying was done through the posterior palatine foramen. In all cases an exposure of ultra-violet rays from the same lamp was given over the face over the peripheral nerve area where pain was the most severe. A

surprisingly large percentage of cases were relieved of pain in a few hours and were cured in a series of from 4 to 8 treatments. Relief from severe pain was experienced in all cases.

Let me now give a typical case history of an acute type of pain about the head.

Case No. 1. S. S. G., 26 years of age. Thirteen weeks previous to coming under observation the patient developed ulcerations of the cornea of both eyes. In spite of treatment by an ophthalmologist, the ulcers persisted. Codein was used as required for rest. The patient was conscious of pain even while under the influence of the narcotic. The pain was continuous and described "as if someone had thrown a handful of sand into the eyes" and as if some one were "prying the eye-balls out of their sockets." The eyes were greatly congested, the eyelids swollen and red. There was a great increase of lachrymation. Because this patient lived out of the city he had to be treated cautiously, so that none of the effects of an overdose of raying would develop and cause complications. It was therefore not until the third treatment that the patient experienced relief. After the first treatment, the patient explained that the "sandy" feeling was greatly lessened. At the third appointment it was noted that there was a decrease in lachrymation and the congestion of the sclera was markedly less. At the time of the fourth treatment, one week after the time the case originally came under observation, the patient remarked in a dramatic manner that the pain was completely relieved. Ultra-violet treatments were continued at longer intervals and after a total of eight treatments the patient was dischargd By that time the congestion of the eyeballs had disappeared and the ulcers were almost healed. This patient was seen three weeks later. There had been no further pain, in the intervening time. The ulcers were healed.

Another typical case history of pain of neuralgic type, considered of the idiopathic variety, bears recounting.

Case No. 2. Mrs. B. K., 47 years old, had always had poor teeth which caused local pain. About two years ago, all but four teeth were removed. The pain continued and assumed a neuralgic character over the right side of the face. About a year and a half ago narcotics were prescribed for the relief of pain. This patient remarked that she was conscious of pain, even while taking the narcotic mixture. Six months previous to coming under ultra-violet treatment the patient attended the dental clinic at Charity Hospital. A general examination was made and treatment given, both locally and generally, without results. Ganglionic alcohol injection was advised but refused. Seventy-two hours after being put under ultra-violet radiation the pain was completely relieved, even in the face of the abrupt restriction of narcotics. This patient remained free from neuralgic pain for several weeks until an infected process became apparent under the tongue on the same side. Ultra-violet radiations controlled this pain until the infection was opened and drained. No pain in the previously affected tri-facial area was experienced during the development and healing of this process. It is more than likely that the infection under the tongue was the etiological factor in this case of neuralgia, masking its location and lying dormant during that time.

Three other interesting case histories will be recited.

Case No. 3. O. A. W., a dentist who on Febrary 8th sprained his right ankle while playing basket-ball. The next morning roentgen ray was negative to fracture. Two treatments of diathermy were given on the 9th of February to the badly swollen, painful joint. That night the patient had the ankle strapped and returned to the office on the following day for treatment. After the use of diathermy the surging galvanic current was used. Mild muscular contractions were produced. This treatment was subsequently continued once daily and the commentaries on the history chart are as follows: February 12th, walks well with cane. February 13th, swelling decreasing. February 14th, does not use cane. Wider range of motion. February 15th, adhesive bandage removed. February 19th, no pain, normal range of motion, walks with only slight limp. Discharged.

Case No. 4. M. W., a physician who three days previously had been struck just below the left knee. The patient had rested and made hot application to the part. The pain had increased with marked swelling chiefly in the patellar ligament. Motion at the knee was impossible. Diathermy was given Feb. 24th for 30 minutes, following which the pain diminished. A second treatment of the same duration was given the following day, after which patient informed me that there was no further pain. Walking was possible without limping.

Case No. 5. (Mrs.) R. G., a physician who eight months previously, while visiting in the North, had suffered a fracture of the neck of the right humerus . Some impaction was pictured. The healing of the fracture had been uneventful, but following discharge by the surgeon, motion was markedly limited. Applications

of heat were made and active and passive motion by massage was attempted. This proved painful, but was continued until the time of undertaking treatment by physical means. On January 3rd, when these treatments began, there was an inability on the part of the patient to raise the elbow as high as the shoulder, and to rotate the arm so as to place the hand back over the lumbar area. Between January 3rd and February 21st fifteen treatments of diathermy were given, followed by muscular exercise as induced by the surging galvanic current. On February 21st, seven weeks after undertaking this treatment, there was ninety per cent of the normal range of motion in the right shoulder joint.

Striking results such as are noted in these cases, with the almost immediate relief of pain and the increase in the range of motion should not be looked for in joint injury cases where fibrosis has developed. However, good results can be looked for where treatment is undertaken early, or in neglected cases where the treatment of the proper kind are given over a protracted period. Physical treatment properly and timely applied to an infected joint will leave it more serviceable than when left to heal without such treatment.

In conclusion, I want to summarize by stating that in my opinion there is a well defined field in medicine for the use of physical measures in everyday practice. Physical therapy should at no time replace or deter the use of proven, specific and regular modes of treatment. However, in justice to the patient and to treatment by physical means, the recommendation or administration of such treatments should not be deferred to a time when naught but a miracle can cure the patient. Results from treatment by physical means are not shrouded in mystery. The dosage is accurate. Physical treatments are no more a cure-all than any form of treatment, but intelligent and early use of them produces many unexpected happy results. Ultra-violet is a rapid, safe and easy means to relieve pain particularly about the head. It has not the dangers of roentgen ray. Because of the inability to confine physical treatments to one type in all cases, a multiplicity of forms of treatment should be at hand for administration. For this reason it is advisable that this branch of medicine be practiced either in institutions or by the specialist where all the necessary means and time are at hand for proper treatment. It is better practiced in conjunction with a group of physicians and surgeons as the triad of medicine, surgery and physical therapy.

DISCUSSION.

Dr. W. A. Knolle (New Orleans): We have found the use of various physical therapy treatments of enormous value in hospital and general office practice in many ways; relief of pain, lessening of inflammatory reaction, absorption of exudates and in a tonic way. Now a few things are quite essential: first, the proper diagnosis, then a definite and proper technique, then the proper machines that will do what you want them to do and, finally, in our practice, someone trained sufficiently well to carry out the follow-up. Just as Dr. Lurie says, you cannot do it all yourself, it is too time-consuming. We have trained two technicians, one to do the work at the hospital and one at the office. They can carry out a definite prescription and make observations, much as a nurse, and only at intervals is it necessary to check these up.

The uses to which these various forms of therapy can be put are entirely too numerous to discuss. I have had considerable experience in some of the things Dr. Lurie mentions. In the relief of trifacial neuralgia where the trouble was in the ganglion, I have been unable to get results, but have gotten results over the distribution of some of the nerves and in some facial conditions where the trouble was entirely peripheral. The violet light of the mercury vapor lamp is one of the best tonics we have available.

With diathermy you can produce heat at the point you want provided you have the apparatus to do it with. In the hospitals we have found that the use of diathermy, together with the ultra-violet body radiations, prior to operation, has helped us in cases which we undoubtedly would have lost had it not been used. We have been able to raise the blood pressure in myocarditis and in one case where the internist hesitated to suggest operation, the patient went through appendectomy and cholecystectomy without showing any reaction to the anesthetic. Dr. Lurie asked me the other day if I had time to say something about other conditions and I mentioned two things which may be of interest in the surgical section. In a case of cirrhosis of the liver which recently came to our attention and in which a Talma operation was done, putting him

under diathermy over upper abdomen, including the liver and part of the heart, we were able entirely to take the water out of him and bring him back 75 per cent. He came to the hospital to die but now he is considering getting out and doing active work in the future.

Another condition is prostatitis; those cases which are too bad a risk to operate and all you can do is a suprapubic cystotomy and let them wear a tube. In numerous cases, with simple diathermy, we have been succeeding in making these patients void after fifteen or sixteen treatments and go ahead a long time afterwards. When there was a recurrence of the trouble we have been able to duplicate results. How long it will keep up I cannot say, as my experience covers only three years.

There are a lot of men about town who know nothing of physiotherapy, and the general practitioner, instead of referring certain cases to the neurologist, employs this treatment, hoping that the color of the light, or something of that kind may have an effect on the mind. If you have ued it you know that it has a definite effect, much more effect than some medicine and some surgical procedures. It is a bad thing to suggest these things to patients when you know they are not going to do any good whatever—you are simply damaging the procedure.

Dr. N. H. Polmer (New Orleans): We learn this morning that physiotherapy has found a place for itself in every day practice. It is not a form of therapy for the internist or the surgeon, but in its wide field is indicated in most of the organic and functional conditions we meet in general practice. That some men get better results than others is chiefly a matter of technique. The possession of a diathermy apparatus does not make one a physiotherapist any more than the possession of a pair of forceps makes one an obstetrician. The selection of the necessary current and the proper application of electrodes as well as a treatment of sufficient intensity and duration is what will produce the desired results. These are what make for success or failure in physiotherapy. The Council of Physical Therapy of the A. M. A., working as an impartial committee to pass upon the different forms of apparatus and their use as well as indications for their use, will serve to place physiotherapy on a more rational basis.

We are here, as physicians, to learn of the newer and better forms of therapy and should take with us the message of physiotherapy; the knowledge that it is not a substitute, but an aid and adjunct to our accepted and practiced forms of treatment.

Dr. C. H. Moseley (Monroe, La.): I would just like to ask Dr. Lurie what has been his experience in the treatment of diabetes with diathermy? We have patients coming to us with diabetic lesions, who apparently have been benefitted. We refer these cases to people doing that special work and we have had excellent results in the treatment of diabetes with diathermy and we have found it takes less insulin. This has not been positively demonstrated, but I have examined the urine myself from day to day. Just before I came here I had a case of vulvovaginitis with diabetes, who responded quickly to diathermy over the liver region.

I would like to know whether I am being fooled, or if other people are having the same experience that I have had?

Dr. Guy A. Caldwell (Shreveport): Physical therapy has a large field and is developing and I think no one is gladder to see it than the orthopedic man, but I do rise to sound a note of warning in the use of physiotherapy in connection with its application to the extremities. We must not get away from fundamental principles and get lost in the midst of violet rays. There is something in connection with the treatment of joints, muscles and bones which must stand uppermost in everybody's mind, and physiotherapy then comes next. We must have rest for the joint that has been injured; with rest and physiotherapy we get results quicker than if rest alone is used; but rest is the first thing. Immobilization is fundamental and unless we use that first and physiotherapy second, we do not get maximum results.

I think physiotherapy should be always under the direction of the doctor. Technicians are necessary and play a very important part in these treatments, but patients should not be turned over to them for an indefinite length of time. In fracture cases particularly, it is necessary that surgical judgment be used.

The earliest form of physiotherapy, viz: baking, massage, passive and active motion, originated with the orthopedist, and we have long recognized its value as well as its proper place as a therapeutic measure. Diathermy is an improved manner of applying heat, but diathermy is not physiotherapy. It, together with other electrical modalities and lights, has broadened the field of physiotherapy until it is an adjunct to general surgery and internal medicine as well as orthopedics.

Physiotherapy, including diathermy and the various other electrical modalities, has an important place in the treatment of injuries and diseases of the extermities, but it is not the first place and is not all of the treatment necessary.

Dr. W. A. Lurie (closing): I want to thank Dr. Knolle for helping me out, and enlarging the list of cases in which physical therapy is beneficial. In the scope of the paper all could not be mentioned to any great degree and it was expected that Dr. Walke in his discussion would bring out more of the use of physical therapy in industrial surgery.

I will refer you to Dr. Granger's paper in The Journal of the A. M. A. in which he cites that although there may not be an individual cost reduction, each case is benefitted so that the aggregate cost in industrial surgery is lessened where physical therapeutic means are used, and he cited that the Aetna Life Insurance Company had a great reduction in the amount of losses paid, and the disability difference in many of their cases so treated was appreciable.

Relative to the treatment of the prostate, as mentioned by Dr. Knolle, I want to say that if he will add to diathermy the use of the mercury vapor lamp, water cooled, or substitute treatment by the water cooled mercury vapor lamp for some of his diathermy treatments, he will find the case will progress more rapidly.

I want to sound a note of warning, that is, you do not get results with physical means in chronic cases any quicker than in any other form of treatment, for the patient must have time to react to the treatments he is getting before results are noticeable.

What Dr. Polmer said, that: "Diathermy apparatus does not make a physiotherapist any more than the possession of pair forceps makes the obstetrician" is timely. To be successful one should have the necessary knowledge and the required accessories to the apparatus to get the treatment to the proper point. This depends on experience which the average general practitioner does not have, and many accessories which are too many and too costly to buy for a limited number of cases.

I am glad to see that everyone stressed the point that there is virtue in physical therapy and that it has its place and that that place is in connection with medicine and surgery and not physiotherapy alone. However, I wish to suggest you do not delay in referring your cases to the physiotherapist until the time when nothing short of a miracle can effect improvement.

My experience with diabetes is rather limited; however, the general idea of physical therapy, the general conception of its use in the increase of elimination, the stimulation of functioning of other internal organs, will help in these instances and probably explain why some improvement was noted in the cases cited. We must not lose sight of the fact that the change in a patient's diet, in conjunction with the insulin, could easily account for the marked improvement noted.

In a case of jaundice with typical symptoms of catarrhal gall-bladder involvement, the patient had more relief from diathermy than any other measure; for instead of locking up the secretions, elimination was improved and the case cleared quickly.

REVIEWS

STIFF AND PAINFUL SHOULDER.

DR. RAMIREZ y SANTOS, M. D.,

PORTO RICO.

The object of this paper is to discuss in a more or less general way the various conditions which may produce a stiff and painful shoulder.

Before discussing these, it might be well to review briefly the anatomy of the shoulder-joint and some of the adjacent structures. The joint is a ball and socket articulation. The bones entering into its formation are the head of the humerus and the shallow glenoid cavity of the scapula. The joint is protected above by an arch formed by the coracoid process, the acromion and coracoid ligament. Under ordinary conditions the surfaces are held in a position by the muscular action, aided by the atmospheric pressure. The deltoid muscle is worthy of mention because of its bursa which covers the joint above, laterally, in front and behind. The brachial plexus however, is the most important anatomical consideration, because most of the causes of pain are due to irritation of this plexus at some point on its distribution.

The causes of shoulder pain have been classified as "direct" and "indirect" causes. Under the "direct" are given injury, arthritis, synovitis, fibrositis, myositis, neuritis, effect of exposure to cold and dampness, effect of occupation, sub-acromial bursitis and local muscular paralyses.

The "indirect" causes are grouped as follows:

(A) Cardio-vascular lesions such as angina pectoris, aortic atheroma and aortic aneurysm.

(B) Pleural, pulmonary and mediastinal conditions, such as pleurisy, pneumonia, tuberculosis, intrathoracic new-growths and pneumothorax.

(C) Gastric lesions such as flatulence, indigestion, gastritis, gastric ulcer and carcinoma.

(D) Duodenal lesions such as, catarrhal duodenitis with or without jaundice and duodenal ulcer.

(E) Hepatic lesions such as, biliousness, gall-stones, cholecystitis, nutmeg liver, new-growths, acute tropical hepatitis and hepatic abscess.

(F) Nervous lesions such as hermiplegis, herpeszoster, acute brachitis, caries of the cervical and dorsal spine, syphilitic cervicodorsal pachymeningitis and cervicedorsal neuralgia.

Orr calls attention to the following diseases as causes of shoulder pain: pulmonary infarct, actinomycosis of the lower right lung, perforated gastric ulcer, subphrenic abscess, perforation of the gall-bladder, peri-splenitis, spontaneous rupture of the spleen, acute pancreatitis, and supra-renal tumors.

Probably the largest group of shoulder disabilities seen in general practice are the so-called medical or non-surgical cases. Of this group the arthritides are by far the most important from the standpoint of frequency of occurrence and in the number of cases. They have been classified as follows :

(A) Acute type in which we have: (a) acute infectious arthriti such as gonorrheal arthritis and strepticoccal from such septic focci as the teeth, tonsils, etc.

(B) Chronic type in which we may have: (a) the hypertropic arthritis found more often in the middle and advanced age; (b) atrophic arthritis or arthritis deformans; (c) tuberculous arthritis, (c) malignant arthritis; (e) luetic arthritis or Charcot's disease.

We may also have involvement of the tissues around the joint giving rise to this important clinical symptom. Bursitis of the shoulder is of common occurrence. In this condition the pain is located over the front of the joint, anterior to the top of the shoulder and at the insertion of the supraspinatous tendon. There may or may not be a history of trauma. The onset is sudden and the pain is intense, motion on any direction being extremely painful. There is generally some swelling of the area surrounding the point of greatest tenderness but no redness is to be seen.

True periarthritis of the shoulder is seldom recognized. The onset may be sudden and when so the pain is very acute and the patient is very careful in moving the arm and shoulder. Efforts at abduction, extension and flexion of the shoulder produce pain and the patient prevents these. It may also come on insidiously, which is the usual way of onset and then the patient reveals nothing abnormal on a careful physical examination: there is no swelling or redness and palpation reveals no tenderness. The patient complains of stiffness of the shoulder and it is found that all motions of the joint are markedly limited in all directions.

The causes of this infection are many. It is often found following infections such as infiuenza and common colds. Focal infections and lues are of extreme importance.

Bursitis does not give any symptoms essentially useful in the diagnosis of this condition. Tenderness over the bursa and the fact that limitation of abduction was partial in bursitis and total in arthritis had been thought to be useful in the differential diagnosis. The sign described by Danharn, where tenderness over the bursa exists but disappears when the arm is abducted and the bursa slides under the acromion, may be of use.

Cooman describes three types of bursitis: (a) acute or spasmodic type, (b) sub-acute or adherent type, and (c) chronic or non-adherent type.

The pain in the acute cases is usually severe and as a rule worse at night. It may be localized at a point on the shoulder just below the acromion. It may often be referred to the insertion of the deltoid or even down the arm to the elbow or into the fingers. In cases where the motion is not limited the point of tenderness passes under the acromion with the tuberosity when the arm is abducted or reappears when the arm is lowered. This is absent in the chronic cases. In these acute cases abduction and external rotation are limited and the patient is unable to put his hand on the back of the neck. Occassionally effusion into the bursa is demonstrated and frequently there is puffiness to the touch.

In the adherent type there is absolute mechanical limitation to abduction and external rotation. Localized tenderness may or may not be present, according to the degree of inflammation. In recent cases it is usually present and absent in old, quiescent cases. The pain is in the same distribution as in the first type and in severe cases it may resemble brachial neuritis. In some cases it is so severe as to prevent sleep and in others there may be no pain whatever.

In the third type the essential characteristic is painful motion, but all of the arc of motion persists. The trouble is due to irregularities in the contour of the base of the bursa, usually at the external side of the bicipital groove, so that motion instead of being smooth and free, is interrupted in its course as the irregular points pass beneath the acromion. In these cases localized tenderness may or may not be present. Abduction and external rotation are little if any limited, but at some point during abduction acute tenderness is experienced which disappears as soon as the tuberosity is safely beneath the acromion. Instead of a smooth, even motion there is a sudden change from an obtuse to an acute angle between the scapula and the humerus. Elevation in the frontel plane is usually easier than in the saggital plane. There may be considerable pain especially after use. It is felt at the insertion of the deltoid or in the neck as in the other types.

Codman in discussing the differential diagnosis of these cases of subdeltoid bursitis mentions the following diseases:

(1) Tuberculosis.

In tuberculosis of the shoulder joint, the roentgen-ray picture is very characteristic and in subdeltoid bursitis it shows a normal joint except where there is a deposit of lime. The atrophy of the muscles and fixation are more pronounced; the 10 degrees which always are free in subdeltoid bursitis are often lost in tuberculosis. Fluctuation is often present below the acromion behind or over the bicipital groove. Tuberculin may be useful.

(2) Fracture of the tuberosity and of the anatomical and surgical neck might be confused with subdeltoid bursitis, but the roentgen-ray picture is nearly always a conclusive evidence for differential diagnosis. Such fracture nearly always shows ecchymosis and swelling down the inner side of the arm, while examination in subdeltoid bursitis is usually always negative.

(3) Deep Axillary Abscess.

When the abcesses are small and high under the pectoralis major the main symptom is fixation of the shoulder point. Care-

ful examination will show that the point of maximum tenderness is high under the pectoralis major and not at the point of the shoulder.

(4) Muscular Rheumatism is as Codman says, one of the commonest diagnoses given to this condition. He believes that true muscular rheumatism is at present a very rare disease. When other lesions are differentiated, there are few which may be called muscular rheumatism and these have none of the subdletoid symptoms except pain.

(5) Chronic Rheumatic Conditions.

Chronic rheumatism of the joint has been classified as atrophic, hypertrophic and infectious arthritis. Atrophic arthritis is a disease of the joint cartilage itself and the symptoms of true joint infection are more pronounced. These are localized pain more pronounced high up in the axilla than under the acromion with a more complete loss of motion.

The hypertrophic type may be a cause of subacromial bursitis because exostoses either on the tuberosity or on the acromion may lead to mechanical irritation of the bursa.

By infectious arthritis is meant a joint irritation, due either to the presence of organisms or their toxins, this irritation not being severe enough to cause suppuration. This condition is very common cause for subacromial bursitis. Codman believes that these infections attack the bursa first because the bursa is less well protected and less well constructed to meet mechanical strains.

(6) Acromio-Clavicular Arthritis.

In these cases we have localized tenderness over the acromio-clavicular articulation together with a decided thickening around this area.

(7) Inflammation of the Biceps Sheath.

In all motion of the humerus we have a motion of the tendon as well. In this inflammatory condition of the sheath we have localized tenderness very close to the long head of the biceps which at times is difficult to say whether it is in the groove or in the tuberosity. Forward and backward motion of the scapula is more or less limited in this condition while in subdeltoid bursitis this motion is the most free of all. The arc of 10 degree of painless motion is much against the presence of inflammation of the biceps tendon sheath.

(8) Brachial Neuritis.

This condition is the most difficult to differentiate from subdeltoid bursitis. Codman believes that the condition begins as an inflammation of the bursa, in other words, he believes that bursitis is the most common cause of brachial neuritis. There are however, certain points which indicate that this is not a typical brachial neuritis. The pain is not felt on the anatomical courses of the branches of the plexus and the tendrness is usually on the bands of the intermuscular fascia, rather than on the nerve trunks.

Brickner classifies bursitis in various kinds according to the clinical picture they present: acute, hyperacute, chronic and chronic with exacerbations. In the acute type the pain and the stiffness develop rapidly and reach the highest point in a few days. The arm can only be abducted to a very slight degree without the causation of very severe pain.

The hyperacute type includes a number of cases in which the pain is very severe and the mobility of the arm is limited. In this type the arm is held close to the chest and the slightest attempt to raise the arm causes very severe pain. Here also we have rapid atrophy of the adjoining muscles.

The chronic type begins with the acute type. The pain and discomfort of the joint is more or less constant and annoying. External rotation is sometimes limited and there is usually present tenderness over the lesser tuberosity. This may

last for months or years and may disappear with or without treatment. There are cases, however, which persist in spite of any treatment used.

The chronic cases with exacerbations include those cases which last for years and in which there is a recession of symptoms for a long period, but every few weeks or months there is a severe exacerbation with symptoms of the acute or hypracute type.

There is at times much difficulty, as A. W. Hammer says, in differentiating tuberculosis of the head of the humerus from sub-deltoid bursitis. Early in tuberculosis there is localized pain over the head of the humerus and the shoulder acquires a characteristic attitude brought about by the accompanying muscular spasm. There is always a primary lesion in some other part of the body, and abscess formation is of late occurrence in tuberculosis. Tuberculosis of the shoulder joint may appear as the proliferative type or the dry type. The former is easily recognized, but in the dry type there may be some difficulty unless the roentgen-ray shows definite lesions of the process. Generally the atrophy of muscles and bones is much more pronounced in tuberculosis. The tuberculin test may be used for further information.

Chronic arthritis, as it has been pointed out in a previous paragraph of this paper, is another cause for a stiff and painful shoulder. Under this term is included a series of degenerative changes occurring at any age impairing function to a greater or less extent, according to the joint changes. Traumatism plays an important part in its causation, but infection may be the starting point of the articular invasion. The most common variety of chronic arthritis of the shoulder is the traumatic or the result of an injury in an individual suffering from an underlying infection or toxic condition. In these cases there is a marked tenderness over the greater tuberosity as well as in the axilla; some induration about the articulation and the presence of crepitus.

Another cause for shoulder pain, particularly on the left side, is conditions causing irritation of the diaphragm, and thus giving rise to a reflex phenomenon. A diseased appendix may likewise cause this clinical symptom. The mechanism is brought about by a pyloro-spasm, increased intragastric pressure, upward pressure upon the left diaphragm by the fornix and irritation of the phrenic nerve. The phrenic nerve terminates around the diaphragmatic surface and at its origin it gives some cutaneous branches around the clavicle. So we can see how irritation of its terminating filaments on the diaphragm will cause a referred pain on the shoulder region.

Cope believes that pain felt over the shoulder region occurring in the course of disease of the upper abdomen is due to irritation of the diaphragm or its peritoneal covering and is referred on the fibers of the phrenic nerve. The frequency of pain at the tip of the right shoulder in cases of liver abscesses, made Cope wonder if it was due to irritation of the liver itself or to irritation of the diaphragm. The diaphragm seems to be the more likely site of the origin, for the shoulder pain was more acute in those cases in which an abscess threatened to burst into the thorax. It was found later that this pain in liver abscess was seldom or never felt unless the pus was near to or threatening to perforate the diaphragm.

Another condition which may cause this symptom, as Cope has found out, is perforated gastric and duodenal ulcer. He cites a case in which all symptoms pointed to a perforation of a duodenal ulcer, together with a severe pain over the supraspinous fossa. On operation he found a perforated ulcer about the junction of the first and second portion of the duodenum with a considerable amount of plastic lymph in the sub-hepatic region. After fixing the perforation, the shoulder pain

cleared out. He attributed the pain to irritation of the posterior part of the right side of the diaphragm. He also mentions the presence of this important and common clinical symptom in cases of diaphragmatic pleurisy and empyema. He cites a case of thoracic actinomycosis affecting the left costo-diaphragmatic region with severe pain on the left supraspinous fossa. The shoulder pain became better directly in proportion as did that on the acinomycotic process.

Cases of acute appendicitis and gallstones have been reported as causing severe shoulder pain, and hence these conditions must never be neglected in looking for the cause of shoulder pain. This referred pain is characterized by its sudden appearance and by its exact localization along the distribution of a spinal segment. It is also accompanied by hyperesthesia and is often increased by deep respiration, cough or change of position.

Cederberg has observed this shoulder pain in sixteen cases of acute pelvic infections, mostly tubal pregnancies. The pain in the shoulder region has been found to be on the opposite side of the lesion, the explanation being based on that of a referred phenomenon.

Infection of one of the bones around the shoulder joint may give rise to a stiff and painful shoulder. F. Viola in the "Riforma Medica" reports two cases of osteomyelitis of the clavicle; both cases presented as main symptom intense pain over the shoulder. He believes that pressure over the brachial plexus by the inflammatory tumor is the cause of the pain.

There are also many cases in which this symptom seems to be the main trouble, but after the most careful study and examination no diagnosis can be made out. These are usually unstable, neurotic individuals and may follow a minor injury. They present no definite signs of neuritis or atrophy but this persistent subjective symptom continues regardless of any treatment instituted.

SUMMARY AND CONCLUSIONS.

1. Lesions of the sub-acromial bursa and the tendon of the supraspinatous muscle are the most common causes of stiff and painful shoulder.

2. The arthritides of the joints may also be considered as important factors.

3. Many cases which are diagnosed as contusions of the shoulder joint, neuritis, periarthritis and muscular rheumatism are in reality due to lesions of the sub-acromial bursa and supraspinatous tendon.

4. The cause of pain in the shoulder region in cases of abdominal lesions is irritation of the diaphragm and not of the abdominal viscera.

5. Pain in the tip of the shoulder is likely to be of diagnostic value in subphrenic abscess, diaphragmatic pleurisy, actinomycosis of the chest, perforation of gastric and duodenal ulcers, and probably ectopic pregnancy.

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CASE REPORTS AND CLINICAL SUGGESTIONS

MASTOIDITIS WITH LATERAL SINUS THROMBOSIS.*

A. J. McComiskey, M. D.,

New Orleans.

This is a case of a child nine years of age admitted to the Touro Infirmary on April 10, 1927, with the complaint of chills and fever.

About twelve months ago she had a suppurative otitis media, the right side of her face being so swollen that it closed the right eye. The ear suddenly ceased to drain and the temperature went up. After repeated hot applications discharge began and she made an uneventful recovery.

All was well until about four weeks ago when the ear began to suppurate again, this time without pain. The following day the temperature went to 103°. She began to have rigors, with temperature fluctuating from normal to 105°.

The blood picture showed a leukocytosis of 14,800 with 82 per cent neutrophiles and 70 per cent hemoglobin. A roentgenogram of all the sinuses was negative, but there was distinct pathology of the right mastoid cells. Mastoidectomy was done and free pus was found.

The child failed to improve. Blood cultures were made of these, the first two were negative and the third showed streptococcus hemolyticus. She was given mercurochrome intravenously twice and also antistreptococcal serum without improvement.

In this state she was brought to Touro. Her general appearance was striking, for in spite of an illness of over one month she was bright and lively, well developed and very well nourished.

There was a sense of bogginess just below the right ear. The right side of the neck seemed full and firm to the touch. There was a slight bulging of the right ear drum. The left ear drum was normal.

The oral hygiene was good. Her tonsils had been removed, but there was a remnant of the right tonsil still remaining with what seemed to be a discharging sinus just behind it.

The remainder of the physical examination was negative with the exception of a slight systolic blow at the pulmonic area.

Cultures were immediately taken from the blood stream and from the discharging sinus behind the right tonsil. Both blood and pharyngeal cultures showed the presence of a short chained hemolytic streptococcus.

The blood picture showed a leukocytosis of 11,000 with 70 per cent neutrophiles and a reduction of the red cells to 4,000,000, with 85 per cent hemoglobin.

In view of the findings in the neck anl pharynx, as well as the blood stream infection, it was decided that the child still suffered from a mastoiditis, or an insufficiently done mastoidectomy, with infection of the jugular bulb and vein in the neck extending back past the mastoid region into the lateral sinus with thrombosis of that venous channel.

The absence of more marked symptoms than the irregular chills and temperature with such a virulent blood stream infection was explainable under the assumption that the lateral sinus was thrombosed above; the jugular vein in the neck clotted below, and the suppurative process between the two discharging through the purulent sinus in the old tonsillar fossa. The fact that cultures made from the ear as well as the tonsillar fossa showed the same organisms further strengthened this hypothesis.

Consequently on the next day after admission the child was again operated on. The neck was dissected and the internal jugular ligated. The old mastoid wound was opened and some remaining necrotic mastoid cells found and removed. The lateral sinus was then exposed, opened and found to contain a large quantity of pus. At the distal end a blood clot was found, removed and free bleeding established from above. This was then controlled by packing with iodoform gauze. The lower end of the sinus was likewise treated.

The upper end of the internal jugular was then opened and again pus welled out from the vein, bleeding was established which must have come through the petrosal sinuses indicating that they were clear. A probe was then passed through the jugular and seen to protrude behind the tonsil in the old tonsillar fossa. The neck wound was closed and the sinus cavity packed with iodoform gauze.

For a few days the child appeared better, her temperature did not reach the extreme range it had been running, and her chills disappeared. But she soon developed an urticaria which caused her great discomfort.

On the 17th she complained of pain for the first time and was restless. On the 23rd her blood picture showed a further reduction in red

*Read at Touro Infirmary Clinical Staff Meeting, May 6, 1927.

cells to 3,500,000 with only 75 per cent hemoglobin, so a transfusion of 200 c.c. of whole mother's blood was given. For a while she seemed to improve, then the temperature took on its tall "picket fence" appearance again and the transfusion was repeated with another temporary improvement until May 2nd, when a third transfusion of 300 c.c. was given.

By this time the child had grown so cross and irritable that almost any form of treatment was an ordeal. Her condition was somewhat improved though she still ran temperature and carried a streptococcal blood stream infection. Thinking that a change to home surroundings would benefit her, she was allowed to go home under the same close attention.

This case illustrates the importance of a thorough examination for blood stream infection, for in spite of two negative cultures a third culture was made which demonstrated the organisms. One culture may be useless, diagnostically, as is the taking of the temperature on one occasion only, but one positive culture is diagnostic.

Eagleton states after a most varied experience "that localized thrombosis of a small venous radicle of the head or neck does not occasion a positive streptococcic blood culture without involvement of a large venous trunk." He regards a positive blood culture as diagnostic of a large venous sinus involvement.

Staphylococcic blood stream invasion, however, may be different as it seems to have a tendency to reach the blood stream by way of the small venous radicles and having once gained control the disease progresses rapidly.

One of the most striking features in blood stream infections is the appearance of the patient. In this case, although recording a high temperature she looked well—almost too well in proportion to the temperature.

Cases in which there is remission of temperature and chills are undoubtedly less virulent than those in which there is continuously high temperature. In a general way, a continuously high temperature with chills is the rule, with free pus in a large venous trunk.

The appearance of delirium is of gravest significance. As long as the infection is confined to the sinus, the sensorium is entirely clear. Delirium doubtless does occur in cases of lateral sinus thrombosis that recover, but its presence is indicative of a meningeal involvement—the usual terminal process.

The associated meningitis need not be suppurative and diffuse, but may be protective and limited in type, in which case if the cause of the meningeal irritation can be removed the inflammation within the dura is apt to subside.

In reviewing this case, I feel sure that the child has been rid of her original focus of infection. Had there been another focus of infection as severe as the original one, it would surely by this time have ruptured, causing meningeal symptoms or abscess formation. The disease is no longer of the sinuses, but a systemic affair.

It is evident that thrombophebitis with a purulent clot rarely results in recovery from surgery alone. Drainage is difficult and the hope of recovery rests on surgery aided by the transfusion of whole or immunized blood. However, it seems probable that as long as the infection is limited to one sinus, the case may recover, provided the surgical attack is instituted early enough.

Eagleton is prone to look upon the formation of clot as primarily protective in origin. According to him, the conception of thrombosis of the cerebral sinuses as fundamentally a septic clot occluding a large venous pathway, should be somewhat revised.

The extension of the clot is largely due to the mechanical slowing of the blood current and is nature's effort to prevent the entrance of infection into the blood stream itself; for even when the clot is very extensive both ends of the thrombus are frequently entirely aseptic.

A thrombus, then, should be regarded as nature's protective effort to prevent invasion of the blood stream, not, as in the usual view, that the thrombus is the agent of bacterial dissemination, something that must be removed lest the infection should be spread. When the clot is infected, it is generally necessary to eliminate it surgically; but prior to actual infection the protection of the clot and its utilization to limit the infection process offers the chief hope of the patient's recovery.

The nature of the anatomy in lateral sinus infections would appear to be favorable for treatment by intravenous injections of bacteriocides because the disease is within the blood vessels themselves.

Kolmer has experimentally demonstrated that about 25 per cent of induced blood stream septicemia from hemolytic streptococci which otherwise are uniformly fatal, were saved by injection of mercurochrome; but in this case as in other cases intravenous mercurochrome failed.

With failure of intravenous dyes more benefit can probably be derived from the use of trans-

fusions and of immunized transfusions following the operation wherein the donor is injected from time to time with a small reactive dose of the prepared organism in the hope that the donor will develop in his blood the agglutinins and bacteriolysins.

DISCUSSION.

Dr. Clyde Lynch: I want to congratulate Dr. McComiskey on the manner in which he presented his case. We have several types of infection. One is primarily a thrombosis of the small venous radicles of the mastoid veins. In this particular type of infection the symptomology in the mastoid is practicaly negative. There is no tenderness on pressure over the mastoid. The roentgenograms appear negative because there is no breaking down of cell partitions and in these cases if the diagnosis is reached early and an early mastoidectomy done, it is possible to obviate the possibility of blood stream infection. In the other type of case we have to deal with the situation usually observed in milder infections, namely, the breaking down of the cell partitions with pus cavities forming in the mastoid process. In this class any sinus infection is much delayed, usually more than ten days.

There is one other thing I want to bring out and that is that there are probably twenty-five collected cases of cured sinus thrombosis without any surgery at all. The best results occur in cases where the vein is ligated and cut in two, not simply opened by puncture.

Dr. W. W. Leake: Dr. McComiskey is to be congratulated on the manner in which he prepared and presented his case of lateral sinus thrombosis. I also want to compliment him on his temerity in attacking so formidable a foe in his initial effort in presenting a paper before this meeting.

Lateral sinus thrombosis is one of the most serious conditions met in diseases of the mastoid region. We have comparatively few cases in our hospitals—the infrequency of the complication depending largely, I think, upon the fact that our operators are conservative and quit when they have removed all necrosed and infected material. It has been my conviction for years that lateral sinus thrombosis occurring so frequently as is reported in some clinics is due often to the radical procedure of the operator in exposing the sinus, palpating and puncturing it, as is advocated by some writers. It is possible for the sinus to become involved from infection before operation and this, I believe, was the situation in this case.

Dr. Harold Kearney: My experience in lateral sinus thrombosis has been limited to the extensive series of no cases. I have never had any. Dr. Lynch thinks that lateral sinus thrombosis is rare here as compared to lateral sinus thrombosis in the East and Northwest, where it is very striking.

Cases of sinus thrombosis are reported with regularity in the Northwest and East.

I attended a meeting of the Colleg of Surgeons recently in Philadelphia and one operator reported two cases of sinus thrombosis in his own recent experience.

Dr. McComiskey: I wish to thank the members of the staff for their generous discussion and interest in the case.

RENAL GLYCOSURIA.*

C. T. Williams, M. D.
New Orleans.

A white female child, 3½ years of age, was first admitted as a private patient to Dr. Kinberger, March 31, 1926. She was discharged two days later, with a diagnosis of chronic bronchitis and a notation: "No cause could be found to account for the glycosuria present." The child was admitted to the charity service, September 10, 1926, for study, and discharged one month later, without a diagnosis, except for renal glycosuria.

Of full term and normal delivery, the child had been the first and only pregnancy of the mother. She had been breast fed for the first two weeks of her life and was then given a cow's milk formula, on account of the failure of the mother's breast milk supply. The progress in growth and development was entirely satisfactory up to one year of age (weighing 25 lbs. at this time, according to mother's statement). She sat alone, walked, talked, etc., at the usual time.

The child had measles at 20 months and pyelitis shortly following the measles, persisting for several months. An automobile accident in July, 1925, resulted in a number of contusions about the head and several lacerations about the face, none of which were considered of a serious nature. Two months after this accident sugar was found present in the urine. This finding has been more or less constant—at times only a faint trace, at times none and again as much as 5 per cent. From one year of age, there have been recurrent attacks of vomiting, regardless of the type of food given, with simultaneous anorexia and chronic constipation. The child has grown very little in stature since one year of age and has made no permanent gain in weight. Her nourishment has been difficult to maintain, the weight going up occasionally around 23 or 24 pounds, but promptly sliding back to 21 or 22 pounds, where it has remained. The child

*Read before the Touro Infirmary Clinical Staff Meeting, May 6, 1927.

makes weekly visits to the clinic and almost every time we see her there has been some new development, like stomatitis, conjunctivitis, furunculosis, etc.

Findings on first admission:

The physical examination was negative, except for an undersized child, with tube rales in both sides of chest posteriorly.

A roentgenogram of the chest showed: "A post-influenzal, or a post-pneumonic process at the base of the right lung."

Roentgen-ray of the head was negative.

The urine examination showed: Albumin, heavy trace; sugar, heavy trace; few pus cells and an occasional hyaline cast. Blood count: total white cells were 7,500, of which 48 were neutrophiles, 47 small mononuclears, 4 large mononuclears, and 1 eosinophile. No malaria plasmodia were found. No changes in the red cells were noted. Blood chemistry: total non-protein N. 27; urea N. 13.5; creatinin 1.2; uric acid 1.6 and dextrose 93.

Findings on second admission (six months later):

The physical examination showed a poorly developed child, much under-size for her actual age (weight 23 pounds, age 3½ years). There was a marked urticarial eruption over the entire body, which persisted for 24 hours after admission. Her mentality was considered precocious for her age. The liver was about 2.5 c.m. below the infra-costal margin in the mid-clavicular line. The lips were dry and of a brownish color. The mucous membranes of the mouth were pale and presented a glistening appearance, with a number of deep fissures, particularly well marked at the angles of the mouth. There was a dark deposit on the teeth, with two or three cavities in the upper incisors. The examination was otherwise negative.

Gastro-intestinal series and a fluoroscopic examination were negative.

Roentgen-ray of the head was negative. Examination of the eye grounds was also negative.

The glucose tolerance test showed the following: (16 gm. glucose orally). Fasting, 40 mg. dextrose per 100 c.c. of blood; half hr., 52.6 mg. dextrose per 100 c.c. of blood; 2 hr., 46.5 mg. dextrose per 100 c.c. of blood; 3 hr., 55.0 mg. dextrose per 100 c.c of blood; 0.3 of 1 per cent sugar in urine.

On a liquid diet (including milk), from September 24th to October 3rd, the sugar in the urine was as follows: September 26, 1 per cent, and October 3rd, 0.3 per cent.

On a weighed diet, from October 4th to October 14th, consisting of CH- 20; F- 34, and P- 18, sugar was present in the urine on every day, except the last, the amounts varying from a faint trace to as much as 0.6 of 1 per cent.

The spinal fluid was negative. Blood Wassermanns were repeatedly negative. Stool examinations were negative for ova and parasites.

During her stay in the hospital, she had her good days and her bad days, vomiting on an average of every three or four days. When the vomiting attacks were on, almost complete anorexia prevailed. The bowels were chronically constipated the entire time.

The child was referred back to the clinic on October 14th, "unimproved," with no diagnosis, except for renal glycosuria.

On November 17th, anti-luetic treatment was instituted, consisting of ten intramuscular injections of sulpharsphenamin, 0.1 gm. weekly, followed by six weeks of "mixed treatment," and then six weeks of mercurial rubs. The child has not vomited since the first injection of sulpharsphenamin, almost six months ago, and has had no sugar in the urine, according to weekly examinations, for more than five months now. She has not gained in weight, however, and is still constipated.

DISCUSSION

Dr. von Meysenbug: I have not seen the patient Dr. Williams has described, but I have been very much interested in renal glycosuria, because I have seen several cases in children of different ages, and I have always been struck by the low blood sugar. I do not know the diagnosis in the case, but it certainly is an interesting fact that anti-luetic treatment was the main feature of the child's improvement.

Dr. Randolph Lyons: I want to say that I do not know much about children. I have no more idea what was the matter with the child than Dr. von Meysenbug had. It appears to me before treatment and diet for glycosuria are given, we should be fairly sure it is glycosuria. I should like to ask Dr. Williams if there were any confirmatory tests made to prove that the sugar was glucose?

Dr. Williams: In answer to Dr. Lyons' question, the phenyl-hydrazin test was done and found positive for glucose.

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COMING MEDICAL MEETINGS.

The Annual Meeting of the Southern Medical Association will be held this year at Memphis, in the week beginning November 14. The program that has been provided for this meeting is of the highest caliber; it represents the best standards of the South. It should prove to be of inestimable value to the physicians of this community to hear what will be discussed at Memphis. It is earnestly hoped that all doctors living in Mississippi and Louisiana, who can secure a well-deserved relief from their usual pressing professional responsibilities, attend this very splendid clinical and scientific medical session.

Five months after the meeting of the Southern Medical Association, the Louisiana State Medical Society will hold its yearly meeting at Baton Rouge. It is the earnest desire of the men who have to do with the arrangement of the program that essayists and speakers volunteer to present papers at this meeting. A state meeting should be representative of the work that is being done in a state. It is impossible for an individual physician to know about the manifold activities of his fellow-doctors throughout the state. Therefore, in order to cooperate with other physicians, to assist in dissemination of knowledge and to add to their own stock of information, the members of the profession should freely and generously offer to contribute to the program. Those of you who see interesting cases, carry out novel and new lines of treatment, or who in any way have anything worth while to bring before the Session, should communicate at the earliest opportunity with the men responsible for preparation of the program.

THE SPLEEN.

It is said that in days of old the Greek Marathon runners were accustomed to having their spleens removed in order to improve their ability in running. It was appreciated at that time, centuries ago, that life was compatible with removal of this organ of unknown functions, and at that time it was realized that these functions were of minor importance. Our present-day knowledge of the spleen is undoubtedly very much greater than centuries ago, but there still remains much to be learned about the bodily purposes of this compact and small organ.

The most important functions of the spleen probably reside in its ability to destroy blood and to make blood. The formation of red cells is a fetal function which is not maintained after intra-uterine life.

Its function as a blood destroyer or a preparer of cells to be destroyed by the reticulo-endothelial system persists during adult life. In addition to these two important offices the spleen is also concerned with bile formation, possibly directly, but in any circumstance making ready the destroyed red cells or their hemoglobin for further action by the liver. The spleen plays an important part in immunity. It is instrumental in antibody formation; it fixes toxins, and it has an elective affinity for bacteria. Also it is a most important organ in the reticulo-endothelial system. Certain cells of the spleen are markedly phagocytic, which may play some part in its immunological activities. Further immunological functions are not proven in human beings, but are assumed from animal experimentation. The spleen probably helps to inhibit the growth of tumors. Splenic implants of tumor growths grow much less readily than elsewhere in the body; and likewise tumor implants grow very much more readily in the splenectomized animal than in the non-splenectomized. It plays some role in aiding natural immunity to tuberculosis. Tuberculosis of the spleen as a primary condition is rare. As a secondary manifestation it is rarely found until the body is overrun by the infection. Animals with large spleens are difficult to infect by injections of the bacillus of tuberculosis, as for example the cat and the dog. On the other hand, animals with small spleens are readily infected, such animals being the well-known laboratory mammals, rabbits and guinea-pigs. That the spleen plays any part in digestion or metabolism is a mooted question. Probably it has something to do with the metabolism of iron.

A new activity of the spleen, or at least an activity which has been unrecognized for fifty years, has been recently pointed out by Barcroft. In a series of ingenious experiments he has shown that the spleen has a reservoir function, being capable of marked dilatation, and also of contraction, storing up red cells which are shunted off from the general circulation. The red cells that are discharged from the splenic pulp furthermore are shown by him to be cells which are distinctly more fragile than those in the general circulation.

It is of interest to note the relationship of splenic function to those diseases and disorders which are characterized clinically by enlargement of the organ. The immunological function of the spleen is observed in those acute infectious diseases which are of long duration. In typhoid fever enlargement of the spleen is one of the characteristic physical findings. In diseases such as splenic anemia and pernicious anemia the destructive activity of the spleen is well recognized, and in these conditions, notably the latter, the removal of the spleen is often of a distinct advantage. An exaggeration of the function of rendering red cells less resistent to hemolyzing factors is seen in that interesting condition, hemolytic jaundice. In addition to destroying the red cells, blood platelets are destroyed by the spleen. Perverted function in this case manifests itself by producing occasionally an essential thrombocytopenia, a disorder which may be cured by the removal of the organ. Reversion of the spleen to its fetal function undoubtedly takes place after severe hemorrhage. In polycythemia vera the spleen again seems to take up this earlier embryologic activity, and an enlarged spleen is felt on examination of the patient. During severe anemia, particularly when improvement takes place, the spleen is often found to be large. The active phagocytes of the spleen are responsible for the enlargement that is seen in a certain number of animal parasitic diseases, notably kala-azar.

Barcroft's demonstration of the shunt off from the general circulation of much of the blood in the spleen, which during life is from two to three times greater in size than when removed at autopsy, helps to explain in part the enlargement of the organ in malaria. In the individual who has been insufficiently treated with quinine, the drug has been unable to reach parasites in this

cut-off portion of the circulation. Here they multiply and grow and produce pathological changes. The parasites remain in a pool as it were without outlet but sooner or later breaking into the general circulation as a result of some one or another cause. The reservoir effect of the spleen also is an aid to a weakened heart, reducing the blood volume and lessening the work of the heart. In certain types of poisoning, in which gases destroy the oxygen-carrying properties of the red cells, it has been very definitely shown that this lake of red cells which has not been acted upon by the gaseous poison may be called to the help of the struggling cells which have been attacked. The close circulatory association of the liver and spleen and their frequent mutual involvement in disease predicates another activity of the spleen, namely that of activating liver function. These chief actions of the spleen are important, but not necessary to life. The explanation lies in the fact that after removal of the spleen there is an increase in the reticulo-endothelial elements which undergo compensatory hyperplasia elsewhere in the body compensate for the removal of the organ.

PERIODIC HEALTH EXAMINATION.

Conforming with a suggestion made by the President of the Orleans Parish Medical Society in his inaugural address the Committee on Periodic Health Examination has settled on a definite plan for a "Longer Life Week" to take place the first week in December.

It is the purpose of the Committee to secure the co-operation of all civic, religious, fraternal and educational bodies with the idea of reaching as many people as possible and to drive home to them the advantage and necessity of periodic health examinations which mean longer and happier life.

Our local medical profession in late years has been appalled by the number of sudden deaths occurring in its midst. How far would periodic health examinations have diminshed the toll? Other groups suffer like bereavements and we believe that periodic health examinations can diminish the evil.

The committee requests that each and every member of the Orleans Parish Medical Society lend his aid to make this a success. Any suggestion from the Membership will be highly appreciated.

WHAT A CHILD SHOULD DEMAND OF HIS DOCTOR.

A child has a right to demand of his doctor that he be well-born, that he be ushered into the world with efficiency, dispatch and consideration for his safety and that of his mother. It means that his mother shall have been, for a number of months preceding his debut, under the watchful eye of a physician.

That his doctor instruct his mother in the essentials of dietetics when his first nine months of eating have been provided for. These essentials concern his daily food intake.

That at the end of the first year of life he shall have been protected from the three diseases which it has become necessary for any child to have;—namely, diphtheria, smallpox and thyphoid fever.

That he be guarded against the hazards that make up the "school diseases," such as eye-strain, bad posture, fatigue, nervousness, malnutrition, and the hundred and one defects of the modern American child that accompany the school as it is so often administered by those who view the child as plastic material to be fitted to the school.

—*"Children," the Magazine for Parents.*

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month the Board of Directors has held its regular monthly meeting; the Society has held its Third Quarterly Executive Meeting and a Joint Clinical Meeting with the Staff of Charity Hospital.

At the meeting of the Board the routine business which had accumulated during the past three months of summer vacation was taken up and dispensed with.

Dr. Geo. B. Collier and Dr. John T. Eagleton were elected to Active Membership.

Dr. Leonard C. Scott who had resigned from the Society in good standing on account of his contemplated change of residence was reinstated to Active Membership.

Dr. Paul R. Meyer was elected to Interne Membership.

The following Interne Members who had applied for Active Membership were favorably voted upon and are now among our Active Members: Drs. Hymen L. Cohen, Geo. D. Feldner, Morrell W. Miller, A. J. McComiskey, Wm. H. Roeling, Herbert L. Weinberger and Robert M. Willoughby.

The question of Group Insurance was brought up for final consideration at the Quarterly Executive Meeting. It was passed unanimously and our President, Dr. A. E. Fossier, was given authority to sign the group policy which will give the $3,000.00 insurance to about 268 members who have signified their acceptance. This policy will be dated November 1st, and the members will be further notified as details are completed.

Dr. W. H. Knolle who was recommended to Honorary Membership by 22 members in good standing was elected to this membership at the 1st October meeting. Dr. Knolle was present and thanked the members for the honor bestowed upon him.

The Condolence Committee, Dr. Daniel J. Murphy, Chairman, proposed the following resolutions, which were adopted:

Whereas, God in His Wisdom saw fit to remove from our midst our beloved confrere, Dr. L. Maurice Provosty.

Be it resolved, That the Orleans Parish Medical Society spread over its minutes the fact of its loss in the death of our beloved brother, Dr. L. Maurice Provosty, and

Be it further resolved, That the Society express in writing to the famiily of the deceased, its condolence and sympathy, together with a copy of the above resolution.

The Board of Directors has selected Dr. M. G. Seelig a noted surgeon of St. Louis to be the Orator for the second annual Stanford E. Chaille Memorial Oration to be held Tuesday, December 6th, 1927.

The Joint Clinical Meeting with the Staff of Charity Hospital was well attended and interesting cases were presented and discussed.

All members who have changed their addresses kindly notify the Assistant Secretary so that the mail files may be corrected.

The Membership of the Society to date is 488 of whom 458 are Active Members.

REPORT OF TREASURER.

Actual Book Balance, 8/31/27	$652.89
Receipts during September	$307.80
	$960.69
Expenditures	$299.34
	$661.35
Outstanding checks	$185.41
	$846.76
Receipt since Bank Balance	$ 42.50
Bank Balance, 9/27/27	$804.26

REPORT OF LIBRARIAN.

The constant use of the Library continued to a marked degree through the months of July, August and September. The work has been much heavier than during any of the other summers since the reorganization of the Library. Eight bibliographies have been prepared on subjects, as follows:

Scopolamin in Labor, 1925-date.
Post-Partal Eclampsia.
Diabetes Mellitus in Infancy and Childhood.
Duval's Work on Measles.
Etiology of Measles.
Pemphigus.
Acriflavin.
Ectopic Pregnancy.

Gifts have been received from
Dr. E. McC. Connely,
Dr. Maurice Lescale,
Dr. H. Dickson Bruns,
Dr. E. L. King,
Lane Medical Library,
Dr. Paul J. Gelpi
Mrs. P. B. McCutcheon.
Dr. W. H. Block,
Mrs. John Oechsner.

215 books have been added to the Library during the Quarter. Of these 137 books were received by binding, 27 from the New Orleans Medical and Surgical Journal, 17 by gift, 25 by purchase and 9 by subscription.

3 sections of new steel shelving have been installed and the consequent shift of material has been made.

Miss Marshall was on vacation during September, the Library room calls being cared for during her absence by Miss Maier and Miss Crossen.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

STATE-WIDE COMMITTEE ON PUBLICITY.

It will be recalled that, pursuant to a call of Chairman B. A. Ledbetter of Committee on Public Policy and Legislation, there assembled in New Orleans, on July 25th, a number of physicians from various parts of the state, who discussed many matters pertaining to the functions of this committee. The result of the deliberations of this assemblage was the passage of a resolution, requesting the president of the state society to appoint a special state-wide committee on PUBLICITY.

Following this meeting, President Herold took up this matter with the executive committee, by mail, and, finding no opposition to the proposal, he forthwith appointed thirty-five members of the society, trying to get a good representation from all parts of the state. He then called the meeting for October 12th, 10 a. m., at headquarters in New Orleans. The following attended the meeting, viz: L. J. Menville, F. M. Johns, A. E. Fossier, B. A. Ledbetter, H. T. Simon, R. B. Harrison, S. B. Wolff, J. E. Knighton, J. Q. Graves, R. O. Simmons, L. J. Williams, R. F. Derouen, J. K. Griffith, C. C. DeGravelles; A. A. Herold, president, and P. T. Talbot, secretary ex-officio.

Many matters pertaining to the matter of publicity—taking the public into our confidence and educating them along medical lines—were discussed; numerous suggestions were made and it was finally decided to leave the working-out of a practical plan to a sub-committee of three or five, to be appointed by the president, who was selected as chairman of the general committee. This special sub-committee is to report its findings and suggestions back to the general committee, which is to meet on the call of the chairman. Several names were recommended for this committee, all of which will be taken under consideration and the appointments announced in a short time.

Dr. M. T. Van Studdiford has returned to the city after a trip to Vienna, where he had occasion to visit the leading hospitals of Europe, pursuing his specialty of dermatology.

TUBERCULOSIS AND PUBLIC HEALTH ASSOCIATION OF LOUISIANA.

With Christmas just two months off, activities in the State Headquarters and in the parishes are becoming more intensive, preparatory to the

opening of the Seal Campaign on Thanksgiving Day, November 24th.

Our supplies from the National are almost all in and orders from our local workers are coming in daily. Encouraging reports of the plans being made to make our campaign a success are being received. Notwithstanding the existing depression as a result of the flood, spirited work in the seal sale is going on in all localities, and many have expressed the hope for a banner year. Sympathy in the tuberculosis cause is becoming more prevalent as the more urgent need for preventive measures is manifest. In 1926, there were approximately 2300 deaths from tuberculosis in Louisiana.

Splendid co-operation is promised us by the billboard poster companies, the press, and other agencies. From the Presidents of Colleges and Superintendents of Schools come letters of support in our campaign.

The Sixth District Medical Society will meet in its ninth annual fall session in the wonderfully progressive city of Bogalusa, Parish of Washington, on Wednesday, November 2, 1927, at 9:45 a. m., sharp, at the City Hall, with the following tentative program:

Call to order and official business

Invocation.

Paper by Dr. F. F. Young of Covington, "Mental Disorders and Society."

Paper by Dr. Geo. S. Bel of New Orleans, "The Heart."

Paper by Dr. Jos. A. Danna of New Orleans, "Recurrent Duodenal Obstruction."

Clinic at Elizabeth Sullivan Memorial Hospital, by Doctors Lafferty and Slaughter; (subject to conditions then existing.

1 P. M.—Luncheon at Pine Tree Inn as guests of His Honor, W. H. Sullivan, Mayor of Bogalusa.

2 P. M.—Visiting the industries and other points of interest of Bogalusa, with special reference to the Elizabeth Sullivan Memorial Hospital, the biggest sawmill in the world and the paper mill.

A. G. MAYLIE, M. D., President.

ITALY'S TAX ON BACHELORS.

The Italian Government recently introduced a tax on bachelors, the proceeds of which are to be used for the work of the National Bureau of Maternity and Infant Welfare, which has been greatly hindered by lack of funds. Premier Mussolini has recently expressed the opinion that in order to obtain sufficient funds for this purpose it may be necessary to impose a tax on childless marriages also. The National Bureau of Maternity and Infant Welfare, through its provincial committees, supervises a large number of agencies engaged in maternity and infancy work.

UNIVERSITY OF CALIFORNIA ESTABLISHES INSTITUTE OF CHILD WELFARE.

The president of the University of California has announced the establishment of an institute of child welfare in the university. The Laura Spelman Rockefeller Memorial has made liberal appropriations for its maintenance for a period of six years beginning July, 1927. The California Congress of Parent-Teacher Associations has pledged to defray during the six-year period the rental charges of such off-campus housing space as the institute will require. Herbert R. Stolz, M. D., has been appointed director of the institute, and Harold E. Jones, Ph. D., director of research.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces the following open competitive examination:

Junior Medical Officer (Interne).

Applications for junior medical officer (interne) will be rated as received by the Civil Service Commission at Washington, D. C., until December 30.

The examination is to fill vacancies in Veterans' Bureau Hospitals throughout the United States, and vacancies in positions requiring similar qualifications.

The entrance salary ranges from $1,860 to $2,400 a year without allowances, or $1,260 to $1,860 a year with quarters, subsistence, and laundry, depending upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

The duties, under immediate supervision, are to admit patients, take histories, make physical and mental examinations and record findings; to make ward rounds of inspection, note charts, record observations; to prescribe for minor ailments or for acute or emergency cases, and to dispense medicine in emergency; to perform minor surgical operations and to assist at major operations and in redressing; to administer anesthetics; to make routine laboratory tests and analyses; to assist at outpatient clinics in dressing and in administering vaccines; to keep records, make up case histories, answer correspondence relating to patients, and compile statistics requiring medical training.

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The American Board of Otolaryngology will hold an examination in Memphis the first day of the Southern Medical Association meeting, Monday, November 14, 1927. The certificate of this Board is probably the most valuable of its kind in the world and is probably the most valuable certificate that any Ear, Nose and Throat man in America possesses. All applications or communications concerning this examination should be addressed to Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska.

The sixth annual meeting of the Southern Association of Anesthetists will be held at the Claridge Hotel, Memphis, Tenn., November 14th and 15th. This organization meets annually in conjunction with the Southern Medical Association.

The Southern Association of Anesthetists is a regional unit of the Associated Anesthetists of the United States and Canada. Others serving various geographical sections are the Eastern, Mid-Western, Pacific Coast and Canadian Societies of Anesthetists.

Among the authors appearing on the program for the coming meeting at Memphis are: Drs. J. S. Lundy and A. E. Osterberg, Rochester, Minn.; M. Q. Ewing, Amory, Miss.; Walker B. Gossett, Louisville, Ky.; Edley H. Jones, Vicksburg, Miss.; Nettie Klein, Texarkana, Texas; J. G. Sherrill, Louisville, Ky., and J. G. Poe, Dallas, Texas.

BORN TO: Dr. and Mrs. David Henry Keller, Alexandria, La.; a girl.

DR. A. A. ALLAIN, OF IBERVILLE, DIES FROM FLOOD WORK.

Worn out by his work for the Red Cross during the flood last spring, Dr. Arthur A. Allain, for 40 years a practicing physician of Iberville Parish, died early Monday morning, October 23, 1927, at Hotel Dieu, where he had been a patient for the last three weeks. The funeral was held from his home at Bayou Goula, La.

Dr. Allain had been a member of the Iberville parish school board and had served the parish as coroner. He was 66 years old. He is survived by his daughter, Miss Dena Allain, and two sisters, Mrs. S. S. Ingman, of Savannah, Ga., and Mrs. Ella Lounge, of New Orleans.

During the flood Dr. Allain was a tireless worker, devoting his ability and energy to the relief of sufferers, without pay and without regard to the long hours he labored. It was this work, his friends say, which in a large measure brought about the illness which caused his death.

DIED

Suddenly at Zenoria, La., July 26th, 1927, Dr. George Preston Smith, born June 2nd, 1859, Sheloh, Union Parish, La. He was a graduate of the Memphis Hospital Medical College, 1890, and a member of the American Medical Association, Southern Medical Association, Louisiana State Medical Society, and LaSalle Parish Medical Society.

A good man, loyal, ethical charitable; he was ever ready, and did the best he could. May he rest in peace.

Headquarters Fourth Corps Area, Office of the Corps Area Surgeon, Fort McPherson, Georgia, October, 1927.

Captain Harry Walker Scofield, Med-Res., 830 Cotton St., Shreveport, La., has been relieved from assignment to the Field Artillery Group, and reassigned as Asst. Surgeon, 4th Div. Trains, (Inactive.)

Captain Gilbert Christian Anderson, Med-Res., 2322 Lowerline St., New Orleans, La., has been transferred to the 87th Division for assignment.

1st Lt. James Rocquet Davobal, Med- Res., 218 Angela Ave., New Orleans, La., has been allotted to the 87th Division for assignment.

TWO PSYCHIATRIC FELLOWSHIPS OPEN

The National Committee for Mental Hygiene announces that two fellowships for training in extramural psychiatry at the Institute for Child Guidance in New York City are available for properly qualified candidates.

These fellowships have been created by the Commonwealth Fund to provide special training for physicians who have had hospital experience in psychiatry, but who wish to prepare themselves for community work in the fields of child guidance, delinquency, education and dependency.

The fellowships are open to physicians who are (1) under 35 years of age, (2) graduates of Class "A" medical schools, and (3) who have had at least one year of training in a hospital for mental disease maintaining satisfactory standards of clinical work and instruction.

Inquiries and applications should be addressed to Dr. Frankwood E. Williams, Medical Director, The National Committee for Mental Hygiene, Inc., 370 Seventh Avenue, New York City.

THE ANNUAL MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

Through their secretary, Dr. Cooper, the Memphis and Shelby County Medical Society, as host to the Southern Medical Association, desires to extend a most cordial and very hearty invitation to the physicians of Louisiana and Mississippi to attend the meeting of that scientific body in Memphis November 14-17.

The Memphis and Shelby County Medical Society has a membership of over 300. Each member joins in the sincere hope that the largest attendance in the history of the Southern will be present and that each visitor will feel personally the welcome herewith extended as if he were receiving it in person accompanied by a hearty hand-shake.

A. F. COOPER, M. D.,
Secretary Memphis and Shelby County Medical Society.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

The regular quarterly meeting of the Homochitto Valley Medical Society was held in Natchez on October 13, with President W. R. Brumfield in the chair.

Dr. John Darrington, President of the State Association, and his son, Dr. G. Darrington, of Yazoo City, were among the guests present.

The following officers were elected for the ensuing year:

President—Dr. L. W. Walker.

Vice-Presidents:—

Adams County—Dr. Edwin Benoist.
Amite County—Dr. W. J. Grady.
Franklin County—Dr. J. L. Calcote.
Jefferson County—Dr. W. H. H. Lewis.
Wilkinson County—Dr. C. E. Catchings.

Secretary-Treasurer—Dr. L. S. Gaudet.

Delegates:

Adams County—Dr. J. D. Shields.
Amite County—Dr. W. R. Brumfield.
Franklin County—Dr. C. E. Mullins.
Jefferson County—Dr. W. H. H. Lewis.
Wilkinson County—Dr. J. W. Brandon, Jr.

Alternates:

Adams County—Dr. R. D. Sessions.
Amite County—Dr. W. J. Grady.
Franklin County—Dr. J. L. Calcote.
Jefferson County—Dr. J. C. McNair.
Wilkinson County—Dr. R. J. Fields.

Member Board of Censors, 1928-30—Dr. P. Beekman.

Member Medical Defense Committee—Dr. W. H. Aikman.

Dr. W. K. Stowers who has recently located in Natchez was elected to membership.

Dr. John Darrington made a most interesting talk on the work of the State Association and asked for suggestions regarding the legislative and public health policies of the Association as well as suggestions that would be of benefit to the individual physician. Dr. J. W. Chisholm brought up the question as to the advisability of attempting to have some law passed giving a physician a prior lien up to a certain amount on the accounts of patients. Dr. M. C. Reeves of Vidalia, Louisiana, one of the guests of the society, stated that his state had such a law but that it was seldom found practicable. Much interesting discussion bearing on the problem of the physician followed.

Dr. C. T. Chamberlain presented the following paper: "A Plea for More Accurate Diagnosis in Our Routine Surgical Work."

Dr. J. W. D. Dicks, who was to have presented a paper on "Subphrenic Abscess," requested that on account of the lateness of the hour the reading of his paper be postponed until the next meeting.

HEART DISEASE IN CHILDREN.

Heart disease in childhood, when acquired, is the result of some infection, in most cases an infection of the upper respiratory tract, and needless to say all foci of infection in children with heart disease should be cleared up to prevent reinfection. Chorea, arthritis, tonsillitis, and heart disease is a well-known syndrome in pediatric practice. In chorea or arthritis the doctor always looks for foci of infection, as one attack is frequently followed by a recurrence and there is always danger of heart complications.

A child with heart disease may live and develop normally. On the other hand, when compensation fails the outlook or prognosis is usually hopeless. While it is difficult to prevent infection and heart disease in the individual child, much can be done to prevent it by immunization and vaccination against certain preventable diseases, and also much may be accomplished to prevent the child with cardiac (heart) disease having a break in compensation, first by removing foci of infection, second by preventing overstrain. This is difficult in childhood as the normal growth puts a strain on the heart.

During the pubescent years the heart normally doubles its size. The communicable diseases are most common in childhood with their concurrent infections; and the natural instinct of the child is to romp and play, and any of these factors may bring about a break in compensation. Often the best criterion of the heart condition is the state of the general nutrition, and this is possibly the best guide to the severity of the lesion, as well as to the degree of activities which may be allowed. Better have the child in bed for weeks or months than to allow a break in compensation. The physicians' advice, or better asy his orders, must be carried out to the letter if a tragedy is to be averted.

(The editor of this column is indeed pleased to see the publication of this bulletin by the State Board of Health. It has often seemed that undue stress or prominence has been laid by the Board on oral hygiene to the neglect of other conditions of childhood. The editor has always been a

staunch supporter of the State Board of Health and its good work but it must not be forgotten that there are other organs in the body that require attention besides the teeth. Too much stress cannot be laid on the discovery and the clearing of foci of infection wherever that may be. The point that immunization and vaccination will do much to prevent disease is so well known that perhaps many of us have neglected to stress to our clientele how much good may be done by this procedure. If we can train children to recognize the idea of periodic examinations not only of their teeth but of the rest of the body as well, we shall be making great advance in this important work.)

Dr. W. H. Frizell, Brookhaven, Councillor of the 8th District, has been confined to his bed recently by an attack of sciatica.

The Issaquena-Sharkey-Warren County Medical Society held its regular monthly meeting in Vicksburg on October 11. The dentists of Vicksburg were invited to be present at this meeting. The following program was presented:

"Pyorrhea Alveolaris; Its Relation to Medicine," Dr. Normal Stout.

"Splenomegaly," Dr. A. Street.

"Whooping Cough." Open discussion, led by Dr. C. J. Lewis.

"Medical Ethics." Discussion opened by Dr. E. F. Howard.

Dr. L. S. Lippincott, Secretary of the Issaquena-Sharkey Warren County Medical Society, does not tell us who the author of the following poem is but that does not detract from its value.

THE ALWAYS FAITHFUL FEW.

When the meeting's called to order,
  And you look around the room,
You're sure to see some faces
  That from the shadow loom,
That are always at the meeting,
  And stay till it is through,
The ones that I would mention
  Are the Always Faithful Few.

They fill the vacant offices,
  As they're always on the spot,
No matter what's the weather,
  Though it may be awful hot;
It may be dark and rainy,
  But they are tried and true;
The ones that you rely on—
  Are the Always Faithful Few.

There's lots of worthy members
  Who will come when in the mood,
When everything's convenient,,
  They can do a little good;
They're a factor in the Order,
  And are necessary, too,
But the ones who never fail us
  Are the Always Faithful Few.

If it were not for these faithful,
  Whose shoulders at the wheel,
Keep the Order moving onward,
  Without a halt or reel,
What would be the fate of others
  Who have so much to do?
They surely would go under
  But for the Faithful Few.

The Central Medical Society held its first meeting after vacation at Jackson, September 30. Its program was as follows:

"The Toxemia of Intestinal Obstruction," Dr. Julius Crisler.

"A Paper on a Surgical Subject, name not given," Dr. A. E. Gordin.

The program of the staff meeting of the Vicksburg Sanatorium, held October 10, was as follows:

"Gastro-jejunal Ulcer," Dr. A. Street.

"Tetanus Following Severe Burns," Dr. G. M. Street.

"Snake Bite Successfully Treated by Anti-Venim," Dr. J. A. K. Birchett, Jr.

"Calcareous Deposits in the Placenta," Dr. J. A. K. Birchett.

"Furunculosis of the External Ear Canal Stimulating Mastoiditis," Dr. E. H. Jones.

"Carcinoma of the Breast with Metastases in the Hand," Dr. J. A. K. Birchett, Jr.

"WHEN SMALLPOX VACCINATION FAILS TO 'TAKE.'"

With fresh vaccine, kept at the proper temperature and applied in the proper manner, there should be very few failures to "take." However, an occasional case is encountered in which the child seems to be very resistant to the vaccine. In these instances it is permissible, after *three* unsuccessful attempts, to issue a certificate for *one year* only, permitting the child to attend school. This applies in those schools where the School Board has been wise, progressive, and humane enough to pass an order requiring vaccination of all children before entering school.

Most of the school vaccination ordinances say successfully vaccinated. It has been our repeated experience to find children in school with no evidence of vaccination, yet with certificates from physicians stating that they are vaccinated. We

find that it is the practice of some physicians to issue a certificate at the time the vaccination is done, not waiting to discover whether is has been successful or not. These certificates mean very little and we believe that no certificate should be issued until sufficient time has elapsed to be able to say that the vaccination was successful, or until three vaccinations have failed.

This means full protection and also means that parents must take the children to the physician or health officer in time to do the work in a thorough manner. "A thing worth doing at all is worth doing well."

DIPHTHERIA.

Diphtheria begins to increase about this time of the year and continues to rise steadily through the month of December.

As we all know, diphtheria is a definitly preventable disease. There is no excuse for either cases of, or deaths from, diphtheria if we provide for our children the preventive treatment—Toxin-antitoxin—and then six months later check up with the Schick Test to make sure that immunity has been produced.

Although some people of all ages are susceptible, by far the most susceptible ages are from six months through seven years. The majority of cases and by far the greatest number of deaths occur among children of these ages. It follows that these are the children who are most urgently in need of protection.

Toxin-antitoxin gives permanent protection against diphtheria, probably for life, but it does not give immediate protection. Eight weeks and sometimes a longer period are required, after the treatment is given, before protection is assured. Since the diphtheria season is just commencing it is therefore of the utmost importance that Toxin-antitoxin is given immediately.

Some people are not made immune by the single series of Toxin-antitoxin treatment. Whether or not protection has been conferred can be determined by having a Schick Test six months after Toxin-antitoxin has been given. If the Schick Test is negative, the child is protected. If the test is positive, he needs more Toxiin-antitoxin.

We, therefore, urge:

1. Have Toxin-antitoxin immediately for your children, especially those between six months and eight years of age.

2. If your children have already had Toxin-antitoxiin six or more months ago make a Schick Test to be sure that protection has been developed.

See your physician about Toxin-antitoxin and the Schick Test.

Dr. B. R. Heninger, who was formerly a member of the staff at Touro Infirmary, New Orleans, is now head of the Medical Department at Columbia Hospital, Columbia, Mississippi.

Dr. W. K. Stowers of Pine Ridge, Mississippi, has recently completed his fifteen-month service as Medical House Officer in gynecology at Johns Hopkins Hospital and has located for practice at Natchez, Mississippi. He will at the same time serve as resident physician at the Natchez Sanatorium.

DIED: Dr. Oliver F. Partridge, Laurel, Mississippi; University of Louisville (Kentucky) School of Medicine, 1893; aged 58; died August 13 as a result of a cerebral hemorrhage suffered some time ago.

DIED: Dr. Horace Hamilton Kinney, Tupelo, Mississippi (licensed Mississippi, 1904) aged 50; died August 27 of cerebral hemorrhage.

Dr. George Rembert of Jackson, Mississippi, was in attendance at the Harvard Medical School in Boston during the summer doing post-graduate work in disease of the heart with special reference to diagnosis. Dr. Rembert expected to return to Jackson about October 15.

I have said that considerations of surface are of paramount importance in biology. Nature has found a means of producing very large surfaces by the aggregation of countless cells, as in leaves, root tendrils, capillaries and innumerable other structures. Krogh has calculated that if we suppose the total weight of a man's muscles to be 50 kilograms and his capillaries to number 2,000 per square millimeter of cross section, the total length of the capillaries of our muscles alone would be something like 100,000 kilometers, and their total surface 6,300 square meters. Our lungs, when collapsed, are small organs, but in them are found 725,000,000, more or less, of little pockets or alveoli where our thin-walled capillaries exchange carbon dioxide for oxygen. The total internal area of these lung terminals or alveoli is close to 100 square meters, enough for thirty suits of clothes, as Sir Arthur Shipley puts it in his valuable little book entitled "Life." The thin-walled capillaries of the lungs, one thousandth of a millimeter in wall thickness, make it possible for the slow process of diffusion to do the work necessary for the maintenance of life in less than the four seconds of each respiratory act. And so everywhere throughout the body we find these enormously extensive areas of cell surfaces—mechanisms for effective absorption, secretion and excretion in the unit of time. Abel, J. J.: Science, 66:318. 1927.

BOOK REVIEWS

Overcoming Tuberculosis: An Almanac of Recovery. By Gerald B. Webb, M. D., and Charles T. Ryder, M. D. 3d ed. rev. New York, Paul B. Hoeber, Inc. 1927. pp. 80.

Many readers will remember this little book by its former title, "Recovery Record." Its popularity is attested by this—its 3rd edition. This book of seventy-nine pages of reading matter is written primarily for the tubercular patient, for his guidance and information. The last half of the book consists of weekly charts whereby the patient may keep a record of his temperature, pulse, weight, etc. The essential lesson of the little book is rest, physical and mental, and more rest. It is replete with good, wholesome advice and is the most satisfactory book of its kind that I know of to place in the hands of the patient. One can read it in an hour and any physician who has not read it will find it well worth his time.

RANDOLPH LYONS, M. D.

Saving Eyesight After Middle Life: By John Herber Waite, M. D., S. M. Cambridge, Harvard University Press. 1927. pp. 48.

This volume is one of a series of booklets written by competent medical authors to help the intelligent and interested lay reader understand more about preventable blindness, especially in older persons. The author has a thorough knowledge of the subject, as well as a marked ability to express simply rather complicated ideas.

The first part of the volume is devoted to a statistical resumé of the one hundred thousand blind persons in this country, of whom forty-five per cent are afflicted, due to extra ocular causes, and fifty-five per cent to intra ocular causes. Glaucoma being accountable for about one-third of the blindness in middle life or after, is given a rather liberal discussion involving its diagnosis, pathology and treatment.

Physicians will make no mistake in recommending this small volume to those of their patients who are possibly interested.

Not many years ago the medical profession believed that a little medical knowledge was a dangerous thing. The patient was supposed neither to understand nor question the orders of the physicians. Today we realize that our mission is basically to help the public get the best out of its health and therefore happiness, primarily by educational methods, which means understanding and practical corrective living.

The older Me and God medical concept has gone by the boards, and a newer intelligent health co-operative service has taken its place.

CHARLES A. BAHN, M. D.

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